JVC

SERVICE MANUAL

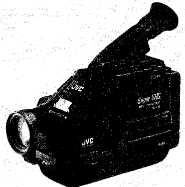
VHS VIDEO MOVIE

GR-SX90U

CCD
Charge Coupled Device

AF
FULL RANGE AF

Hi-Fi
STEREO



Super VHS

S VHS C

HQ
High Quality

videomovie

SPECIFICATIONS *(The specifications shown pertain specifically to the model GR-SX90U for USA.)*

Format	S-VHS/VHS NTSC standard
Power source	DC 6 V ⎓
Power consumption	9.9 W
Signal system	NTSC-type
Video recording system	Luminance: FM recording Color: Converted sub-carrier direct recording Conforms to S VHS standard
Hi-fi audio recording system	Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	2 Hi-Fi audio channels 1 normal audio channel
Cassette	S VHS C / VHS C cassette
Tape speed (SP)	33.35 mm/sec (1-5/16 ips)
(EP)	11.12 mm/sec (7/16 ips)
Recording time Max. (SP)	30 minutes (with ST-C30 cassette)
(EP)	90 minutes (with ST-C30 cassette)

VIDEO

Output	1 Vp-p, 75 ohms, unbalanced (via AV OUT connector)
S/N ratio	More than 42 dB (with Rohde & Schwarz noise meter)

AUDIO

Output	–6 dBs, 1 k-ohm (via AV OUT connector)
Microphone input	–68 dBs, high impedance, unbalanced

HI-FI AUDIO

Wow and flutter	Less than 0.005 % WRMS

CAMERA

Pick up	1/2"-format CCD
Minimum required illumination	3 lux (0.3 fc) (at F/2)
Illumination range	3 to 100,000 lux (0.3 to 9,300 fc)
Lens	F/2, f = 8.7 to 70 mm, 8:1 power zoom lens with auto iris and macro control, filter diameter 43 mm
Viewfinder	Electronic viewfinder with 0.6" black/white CRT
Selectable high-speed shutter	Switchable (1/60, 1/100, 1/250, 1/500, 1/1000, 1/4000 second)
White balance adjustment	Full-auto

GENERAL

Operating temperature	0°C to +40°C (32°F to 104°F)
Operating humidity	35% to 80%
Storage temperature	–20°C to +50°C (–4°F to 122°F)
Weight	860 g (1.9 lbs) (without Lens cap, Pad, Thumb rest)
Dimensions	176(W) x 118(H) x 109(D) mm (6-15/16" x 4-11/16" x 4-5/16") (incl. viewfinder)

AA-V3U SPECIFICATIONS

Power requirement	U.S. and Canada: AC 120 V∿, 60 Hz Other countries: AC 110 to 240 V∿, 50/60 Hz
Power consumption	22 W
Output	DC 8.5 V ⎓, 1.3 A (Charge), DC 6 V ⎓, 1.8 A (VideoMovie)
Charging system	Constant current, peak detection, timer controlled
Dimensions	145(W) x 42(H) x 69(D) mm (5-3/4" x 1-11/16" x 2-3/4")
Weight	Approx. 360 g (0.8 lbs)

C-P6U SPECIFICATIONS

Type	VHS cassette adapter
Dimensions	188(W) x 25(H) x 104(D) mm (7-7/16" x 1" x 4-1/8")
Weight	240 g (0.53 lbs)
Accessory	"AA (R6)"-size battery x 1

REMOTE CONTROL UNIT SPECIFICATIONS

Battery life	Approx. 8 hours (continuous use)
Dimensions	55(W) x 86(H) x 5(D) mm (2-3/16" x 3-7/16" x 1/4")
Weight	18 g (0.04 lbs)

PROVIDED ACCESSORIES

AC power adapter/battery charger	AA-V3U
Battery pack	BN-V14U
AV output cable	
S-VIDEO cable	VC-V44U
Cassette adapter	C-P6U
S-VHS-C cassette	ST-C20
Battery for clock operation	CR2025
Shoulder strap	VU-V220U
Remote control unit	

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

COPYRIGHT © 1991 VICTOR COMPANY OF JAPAN, LTD.

No. 86156
November 1991

TABLE OF CONTENTS

Section Title Page

Important Safety Precautions

INSTRUCTIONS

1. SERVICE CAUTIONS & DISASSEMBLY

1.1 PRECAUTIONS 1-1
1.2 REQUIRED TEST EQUIPMENT, FIXTURES/TOOLS AND OTHERS 1-1
1.2.1 Test equipment, etc. 1-1
1.2.2 Special test equipment and tools required for adjustment 1-2
1.2.3 Main screws to deal with disassembly/assembly 1-2
1.3 SMC Replacement Tools (YTU94038A/B/C) 1-3
1.3.1 Outline 1-3
1.3.2 Kit description 1-3
1.4 BASIC KNOWLEDGE OF VIDEOMOVIE SMC* PARTS REPLACEMENT 1-5
1.5 DISASSEMBLY OF CAMERA SECTION 1-7
1.5.1 Operation unit 1-7
1.5.2 Electronic viewfinder 1-7
1.5.3 Front panel assembly 1-7
1.5.4 Microphone unit, White balance sensor 1-7
1.5.5 Cassette cover assembly 1-8
1.5.6 Upper cover assembly 1-8
1.5.7 Rear cover assmebly 1-8
1.5.8 Lower case assembly 1-8
1.5.9 Camera section 1-9
1.5.10 Hookup for inspection and adjustment of camera section 1-9
1.5.11 VIDEO board 1-10
1.5.12 DC-DC converter 1-10
1.5.13 SSG board 1-10
1.5.14 AF board 1-10
1.5.15 IMAGER board 1-11
1.5.16 Replacement of CCD imager sensor 1-11
1.5.17 OP (operation) block assembly 1-12
1.5.18 AF motor assy 1-12
1.5.19 Electronic viewfinder 1-12
1.6 DISASSEMBLY OF DECK SECTION 1-13
1.6.1 Hookup for inspection and adjustment of deck section 1-13
1.6.2 A/V SUB board 1-14
1.6.3 JACK board 1-14
1.6.4 VTR board 1-14
1.6.5 PRE REC ASSY 1-15
1.6.6 SENSOR board 1-15
1.6.7 Replacement of cassette housing 1-15
1.6.8 To take out cassette tape 1-16
1.6.9 Replacement of upper drum 1-16
1.6.10 Checkup and adjustment of mechanism phase 1-17
1.7 INSPECTION AND MAINTENANCE 1-19
1.7.1 Standard maintenance/inspection schedule of main components 1-20
1.7.2 Remarks 1-20

2. DECK SECTION ADJUSTMENT

2.1 PREPARATION 2-1
2.1.1 Precaution 2-1
2.1.2 Connection for adjustment 2-1
2.2 SERVO CIRCUIT AND INTERCHANGEABILITY 2-2
2.3 PRE-AMP CIRCUIT 2-5
2.4 LUMINANCE (Y) SIGNAL CIRCUIT 2-6
2.4.1 N (normal) VHS Y signal circuit 2-6
2.4.2 S-VHS signal circuit 2-9
2.5 COLOR SIGNAL CIRCUIT 2-12
2.5.1 N (normal) VHS color signal circuit 2-12
2.5.2 S-VHS color signal circuit 2-13
2.6 AUDIO CIRCUIT 2-14
2.6.1 Normal audio circuit 2-14
2.6.2 Hi-Fi audio circuit 2-15

3. CAMERA SECTION ADJUSTMENT

3.1 PREPARATION 3-4
3.1.1 Setup 3-4
3.1.2 Precaution 3-4
3.1.3 Connection for adjustment 3-4
3.2 LUMINANCE (Y) SIGNAL CIRCUIT 3-5
3.3 COLOR (C) SIGNAL CIRCUIT 3-8
3.3.1 Standard indoor mode 3-8
3.3.2 Standard indoor mode 3-11

Section Title Page

3.4 AUTO FOCUS ADJUSTMENT 3-14
3.4.1 Connection for adjustment 3-14
3.4.2 Adjustment 3-15
3.5 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT 3-17

4. OVERALL WIRING AND BLOCK DIAGRAM

4.1 OVERALL WIRING 4-1
4.2 SERVO BLOCK DIAGRAM 4-5
4.3 CAMERA BLOCK DIAGRAM 4-9
4.4 Y/C BLOCK DIAGRAM 4-12
4.5 POWER SYSTEM BLOCK DIAGRAM 4-15

5. DIAGRAMS AND CIRCUIT BOARDS

5.1 CIRCUIT BOARD LOCATION 5-1
5.2 SCHEMATIC DIAGRAM NOTES 5-2
5.3 REPLACING SUBMINIATURE "CHIP" PARTS 5-3
5.4 REGULATOR SCHEMATIC DIAGRAM 5-5
5.5 SERVO SCHEMATIC DIAGRAM 5-7
5.6 MECHACON SCHEMATIC DIAGRAM 5-9
5.7 AUDIO ERASE SCHEMATIC DIAGRAMS 5-11
5.8 Y/C SCHEMATIC DIAGRAM 5-14
5.9 JACK SCHEMATIC DIAGRAM 5-17
5.10 A/V SUB (VIDEO) SCHEMATIC DIAGRAM 5-19
5.11 A/V SUB (Hi-Fi) SCHEMATIC DIAGRAM 5-21
5-15 A/V SUB, JACK, TRIGGER,UPPER DRUM CIRCUIT BOARD 5-33
5.16 OPERATION (DECK) SCHEMATIC DIAGRAM 5-37
5.17 IMAGER SCHEMATIC DIAGRAM 5-39
5.18 IMAGER CIRCUIT BOARD 5-41
5.19 SSG SCHEMATIC DIAGRAM 5-43
5.20 SSG CIRCUIT BOARD 5-45
5.21 AF SCHEMATIC DIAGRAM 5-47
5.22 AF CIRCUIT BOARD 5-49
5.23 CPU, DISPLAY,JUNCTION & TALLY SCHEMATIC DIAGRAMS 5-51
5.24 CPU, DISPLAY, JUNCTION & TALLY CIRCUIT BOARDS 5-53
5.25 VIDEO SCHEMATIC DIAGRAM 5-56
5.26 VIDEO CIRCUIT BOARD 5-59
5.27 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM 5-61
5.28 ELECTRONIC VIEWFINDER CIRCUIT BOARD 5-63
5.29 OPERATION (CAMERA) SCHEMATIC DIAGRAM 5-65

6. MECHANICAL PARTS AND EXPLODED VIEWS

6.1 PACKING ASSEMBLY <M1> 6-1
6.2 FINAL ASSEMBLY <M2> 6-3
6.3 MECHANISM ASSEMBLY <M3> 6-6
6.4 OPTICAL BLOCK ASSEMBLY <M4> 6-8
6.5 ELECTRONIC VIEWFINDER ASSEMBLY <M5> 6-9

7. ELECTRICAL PARTS LIST

VTR BOARD ASSEMBLY <01> 7-1
JACK BOARD ASSEMBLY <02> 7-11
PRE REC BOARD ASSEMBLY <03> 7-13
SENSOR BOARD ASSEMBLY <04> 7-13
TRIGGER BOARD ASSEMBLY <05> 7-13
A/V SUB BOARD ASSEMBLY <06> 7-14
OPERATION BOARD ASSEMBLY <07> 7-16
END SENSOR BRACKET ASSEMBLY <08> 7-16
IMAGER BOARD ASSEMBLY <11> 7-16
SSG BOARD ASSEMBLY <12> 7-17
VIDEO BOARD ASSEMBLY <13> 7-19
AF BOARD ASSEMBLY <15> 7-22
CPU BOARD ASSEMBLY <16> 7-24
JUNCTION BOARD ASSEMBLY <17> 7-25
DISPLAY BOARD ASSEMBLY <18> 7-25
TALLY BOARD ASSEMBLY <19> 7-25
DRUM BOARD <40> 7-25
E.VF BOARD ASSEMBLY <50> 7-26

8. TECHNICAL INFORMATIONS

8.1 MECHACON CPU ($\boxed{0}\boxed{1}$ DECK IC301) Pin function 8-1
8.2 Automatic operation of mechacon 8-3
8.3 EMERGENCY DISPLAY 8-3
8.4 SERVO LSI ($\boxed{0}\boxed{1}$ VTR IC101) Pin function 8-4
8.5 CAMERA CPU ($\boxed{1}\boxed{6}$ CPU IC1) Pin function 8-5
8.6 AUTO FOCUS SPU ($\boxed{1}\boxed{5}$ AF IC3) Pin function 8-6
8.6 AUTO WHITE PRESET MODE 8-8

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.
2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: **Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.**
3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.
4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier
6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

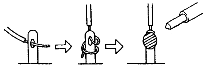


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)
8. Check that replaced wires do not contact sharp edged or pointed parts.
9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

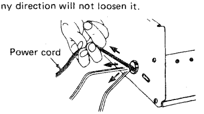


Fig. 2

10. Also check areas surrounding repaired locations.
11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.
12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

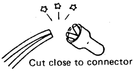


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

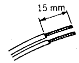


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

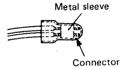


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

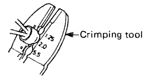


Fig. 6

(5) Check the four points noted in Fig. 7.

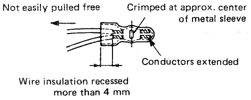

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

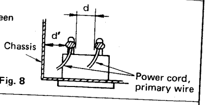


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

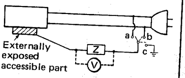


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

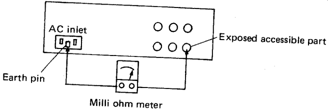


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

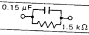
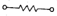
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada		i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

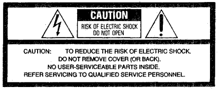
Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Thank you for purchasing the JVC Compact VHS VideoMovie. Learn about all the available features and take advantage of them for your total moviemaking enjoyment.
Before using this VideoMovie, read this instruction booklet carefully so that you will obtain the best results from your VideoMovie.

SAFETY PRECAUTIONS



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The AA-V3U AC Power Adapter/Battery Charger should be used with:
AC 120 V∿, 60 Hz in the USA and Canada,
AC 110 – 240 V∿, 50/60 Hz in other countries.

CAUTION (applies to the AA-V3U)
TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.
ATTENTION (s'applique à l'AA-V3U)
POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

Cassettes marked "S-VHS-C" and "VHS-C" can be used with this VideoMovie. However, S-VHS recordings are possible only with cassettes marked "S-VHS-C".

Warning on lithium battery
The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
Replace battery with Panasonic (Matsushita Electric) CR2025; use of another battery may present a risk of fire or explosion.
- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

This equipment should be used with DC 6V ⎓ only.
CAUTION:
To prevent electric shocks and fire hazards, do NOT use any other power source.

NOTES:
- The rating plate (serial number plate) and safety caution are on the bottom of the main unit.
- The rating plate (serial number plate) of the AC power adapter/battery charger is on its bottom.

JVC COMPANY OF AMERICA
Division of US JVC CORP.
41 Slater Drive, Elmwood Park, New Jersey 07407
COPYRIGHT© 1991VICTOR COMPANY OF JAPAN, LTD.
Printed in Japan

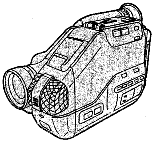
INFORMATION
This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Change or modifications not approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

This VideoMovie is designed to be used with NTSC-type color television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the BN-V14U/BN-V22U battery packs and, to recharge them, the provided multi-voltage AC power adapter/battery charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

CONTENTS

Safety precautions 2
Major features 4
Information on this VideoMovie's audio system 4
Quick operation guide 6
Controls and connectors 8
Warnings 10
Viewfinder indications 11
Power supply system 12
Basic preparations 14
Loading and unloading a cassette 14
Date/time/birthday setting 15
Recording operation 16
Advanced videography techniques 20
Playback 28
Connections to a television for playback 30
Using the cassette adapter 32
Using the VHS/VHS-C compatible VCR 32
Editing techniques 33
Using accessories (optional) 35
Using the remote control unit 36
Systems flexibility 42
Supplemental information 43
Cautions 44
Video cassettes 45
In case of difficulty 46
Specifications 47

MAJOR FEATURES



- Super VHS and Hi-Fi stereo sound
- Ultra-compact, ultra-light weight
- Full Range AF system with Auto Macro
- 8X power zoom lens and 3-Lux low-light sensibility (with Gain-Up)
- Flying erase head
- Multiple-speed shutter with 1/4000-sec.
- Digital Superimpose (8 colors, nega/posi)
- Cinema mode facility
- Encore playback
- Digital AV Tracking
- Age insertion
- Wireless remote control unit

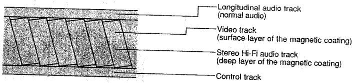
INFORMATION ON THIS VIDEOMOVIE'S AUDIO SYSTEM

To provide true Hi-Fi audio accompaniment to Super VHS entertainment, the VideoMovie employs a unique audio recording system.

CAUTIONS:

- The Hi-Fi soundtrack recorded with the VideoMovie cannot be reproduced with video equipment other than Hi-Fi VHS.
- Tapes recorded with a conventional stereo video recorder produce monaural sound when played back with the VideoMovie.

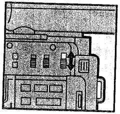
Tape pattern recorded with VideoMovie


Longitudinal audio track
(normal audio)
Video track
(surface layer of the magnetic coating)
Stereo Hi-Fi audio track
(deep layer of the magnetic coating)
Control track

Hi-Fi audio recording and reproduction are available only from the Hi-Fi audio track while the longitudinal audio track provides normal audio.

The Hi-Fi and normal soundtracks are recorded simultaneously.

When monitoring audio



Set the AUDIO out mode select switch according to the audio track you wish to listen to. (Also effective when monitoring with the stereo earphones connected to PHONES jack.)

NORM: To listen to the sound recorded on the longitudinal (normal) audio track.

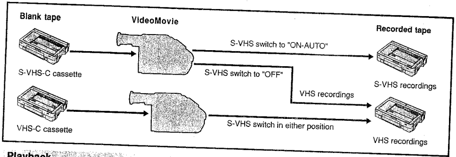
MIX: To listen to the sound recorded on both Hi-Fi and longitudinal audio tracks (mixed audio).

Hi-Fi: To listen to the sound recorded on the Hi-Fi audio track.

- When playing back a tape containing the same soundtrack on both hi-fi and normal audio tracks, a slight time lag is sensed between the two sound tracks, probably with some distortion, in the MIX position. Therefore, in such a case, use the NORM or Hi-Fi position.

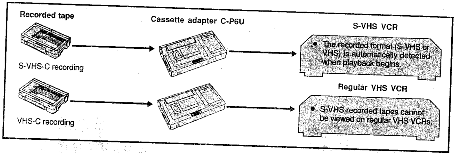
Compatibility between S-VHS and VHS

Recording

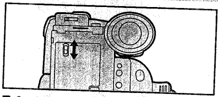

Blank tape
VideoMovie
Recorded tape
S-VHS-C cassette
S-VHS switch to "ON-AUTO"
S-VHS switch to "OFF"
VHS recordings
S-VHS recordings
VHS-C cassette
S-VHS switch in either position
VHS recordings

Playback

The pictures recorded with the VideoMovie can be played back by directly connecting it to a TV; then can also be played back using a VCR.


Recorded tape
Cassette adapter C-P6U
S-VHS VCR
S-VHS-C recording
• The recorded format (S-VHS or VHS) is automatically detected when playback begins.
Regular VHS VCR
VHS-C recording
• S-VHS recorded tapes cannot be viewed on regular VHS VCRs.

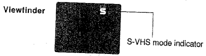
Selecting the S-VHS/VHS mode



1. Set the mode select switch to "ON-AUTO". The VideoMovie automatically detects the type of cassette so that the appropriate record mode is automatically selected.
   With a cassette marked "S-VHS-C": S-VHS mode
   (The S-VHS mode indicator lights.)
   With a cassette marked "VHS-C": VHS mode
2. Set this switch to "OFF". The standard VHS record mode always remains in effect, regardless of the cassette used.

S-VHS mode indicator

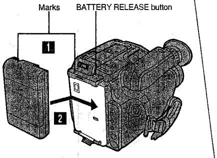
The S-VHS mode indicator remains lit while the VideoMovie is in the S-VHS mode. (When the S-VHS mode select switch is set to "ON-AUTO" and an S-VHS-C cassette is inserted.) It also remains lit when playing back S-VHS programs recorded on an S-VHS-C cassette with a safety tab.


Viewfinder
S
S-VHS mode indicator

Note:
With the switch set to "ON-AUTO", in playback, if regular VHS signals are recorded on an S-VHS-C cassette, the VideoMovie switches to the VHS mode automatically. At the same time, the S-VHS mode indicator goes off.

QUICK OPERATION GUIDE

SUPPLY POWER

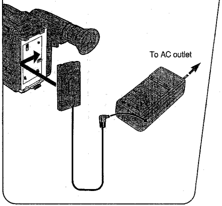


A. Using the battery pack.

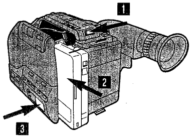
1. Align mark on battery pack with similar mark on back of VideoMovie. (Charging procedure, ☞ P.12)
2. Slide the battery pack in the direction of the arrow until it locks into place.

- To remove the battery pack, press the BATTERY RELEASE button and slide it out.

B. Using the AC power adapter. (☞ P.13)

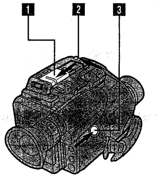


INSERTING A VIDEO CASSETTE



1. Slide the EJECT switch.
2. Insert a video cassette.
3. Close and lock the cassette holder by pressing the PUSH button.
   (For more details, ☞ P.14.)

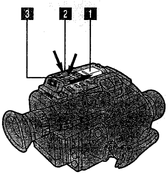
RECORDING



1. Set the control panel cover to "CAMERA".
2. Slide the POWER switch to ON.
   The power indicator will light and image will be seen in viewfinder.
3. Press the Recording Start/Stop button.
   Recording will start.

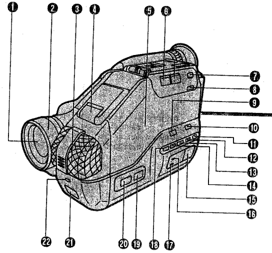
- To stop recording temporarily, momentarily press the Recording Start/Stop button once again.
  (For more details, ☞ P.16.)

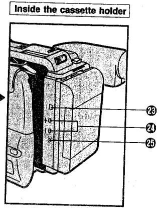
PLAYBACK

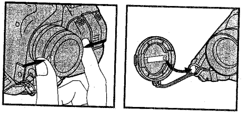


1. Set the control panel cover to "PLAY".
2. Press the REW button.
   The tape will automatically stops at the beginning of the tape.
3. Press the PLAY button.
   Playback will start.
   (For more details, ☞ P.28.)

CONTROLS AND CONNECTORS

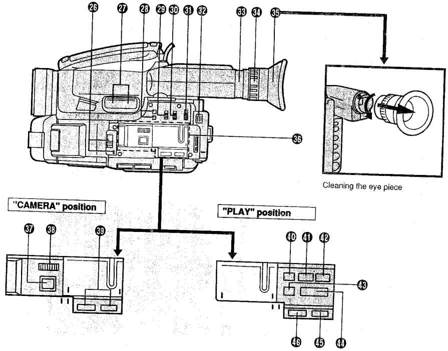



Inside the cassette holder



Remove/reattach the lens cap

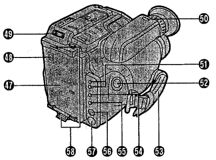
Remove or reattach the lens cap by pressing the tabs on either side of the lens cap. Attach the lens cap to the grip pad as illustrated so to prevent the lens cap from swinging during shooting.


Cleaning the eye piece

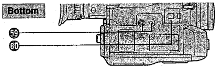
"CAMERA" position

"PLAY" position

No.		Page
①	8:1 zoom lens	22
②	Lens hood	
③	Stereo microphone	
④	White balance sensor window Detects type of light for white balance adjustment.	
⑤	Cassette holder	14
⑥	MANUAL FOCUS (FAR/NEAR) button	21
⑦	FOCUS MANU/AUTO select button	21
⑧	FADER button	27
⑨	TITLE button	24
⑩	DISPLAY on/off button	19
⑪	SHUTTER button	23
⑫	Display MODE button	19
⑬	IMAGE REVERSE/CINEMA button	24
⑭	Title COLOR button	24
⑮	PUSH button	14
⑯	COUNTER MEMORY button	29
⑰	COUNTER RESET button	29
⑱	Title MEMORY button	24
⑲	GAIN UP button	22
⑳	FULL AUTO button Press this button to release any of the following manually engaged modes. • Focus • High Speed Shutter • Gain-Up mode	
㉑	Infrared beam sensor window Receives the transmitted signal from a remote control unit.	
㉒	Tally lamp Lights to show that the recording is in progress.	
	Inside the cassette holder	
㉓	TAPE LENGTH select switch	17
㉔	DATE/TIME ADJ. SET (+/–) buttons	15
㉕	DATE/TIME ADJ. SELECTbutton	15
㉖	POWER switch with power indicator	16
㉗	Power zoom (T/W) buttons	21
㉘	TRACKING (+/–) buttons	29
㉙	DUBBING ON/OFF switch	33
㉚	SP/EP recording mode select switch Set to SP to record at the standard tape speed. Set to EP to record at the slower tape speed, allowing an extended recording time that is 3 times in the SP mode.	
㉛	AUDIO out mode select switch	4
㉜	BATTERY RELEASE button	12
㉝	Electronic viewfinder	14
㉞	Dioptric adjustment control	14
㉟	Eyepiece The viewfinder eyepiece can be removed for cleaning. Turn the eyepiece counterclockwise and pull it out.	
㊱	Control panel cover	16
	"CAMERA" position	
㊲	QUICK REVIEW button	18
㊳	Trigger ALARM ON/OFF switch	16
㊴	RETAKE R/F buttons	18
	"PLAY" position	
㊵	EDIT button	33
㊶	STOP button	28
㊷	PAUSE button	28
㊸	ENCORE button	29
㊹	PLAY button	28
㊺	FF button Pressing this button in the Stop mode fast forwards the tape. Pressing it in the Playback mode allows fast-search playback in the forward direction.	
㊻	REW button Pressing this button in the Stop mode rewinds the tape. Pressing it in the Playback mode allows fast-search playback in the reverse direction.	



No.		Page
㊼	Battery pack mount	12
㊽	S-VHS recording mode select switch	5
㊾	EJECT switch	14
㊿	Second recording start/stop button (SUB TRIGGER) When you shoot scenes from a low angle, use this button when positioning the camera for better viewability or when holding it lower at a more secure location.	
(51)	External MIC jack	35
(52)	Recording Start/Stop button	16
(53)	Grip strap	14
(54)	PHONES (headphone) jack For monitoring the sound during shooting or playback, connect an stereo earphone to this jack.	
(55)	REMOTE jack	36
(56)	AV OUT connector Both audio and video signals can be obtained from this connector for editing, etc.	
(57)	[S] OUT connector For connection to a television or VCR equipped with an S-VIDEO input terminal.	



(58) Eyelets for shoulder strap 35

Bottom

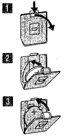
(59) Tripod mounting socket 35

(60) Clock battery compartment 10

CLOCK (LITHIUM) BATTERY INSERTION

Necessary for clock and date/time settings and for title memory display.

*Switch off the unit's power before inserting or removing the battery.



1. Open the clock battery compartment cover while pressing the release tab.
2. Insert the provided lithium battery with the plus (+) side up. Insert the battery by sliding it in the direction of the arrow and pushing it down. When removing the battery, slide it in the direction of the arrow and lift it out.
3. Close the compartment cover until it clicks.

Warning on lithium battery

- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

WARNINGS

BATTERY WARNING

- When the battery power is coming to an end, a battery warning indication appears in the viewfinder. After indication appears, the power turns off automatically. Replace the battery pack with a fully charged one.

CLOCK BATTERY WARNING

- Blinks when the lithium battery is not in place or exhausted. In this condition, no date/time function is available.

CONDENSATION WARNING

- Appears when the excessive moisture condensation occurs inside the unit.

CASSETTE WARNING

- Blinks to warn that no cassette or a cassette without safety tab is loaded.

HEAD CLOG WARNING

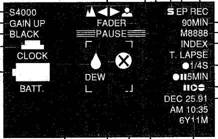
- Appears when video head clogging occurs. Proceed as follows.

1. Stop recording. Slide the control panel cover to "PLAY", and press the FF button.
2. Return the cover to "CAMERA", and use the RETAKE R/F buttons to locate the end of previously recorded section.
3. Press the Recording Start/Stop button to resume recording.

Note:

- This VideoMovie incorporates an automatic head cleaning function which operates each time the cassette is loaded and unloaded. However, even after this operation, if the head clog warning indication does not go off, try it a few more times. If the indication still remains displayed, consult your nearest JVC Dealer.

VIEWFINDER INDICATIONS



Title color

BLACK → WHITE → YELLOW → CYAN → GREEN → PURPLE → RED → BLUE → BLACK

Gain up

GAIN UP ....Gain-Up mode

Shutter speed indicator

Focus indicator

▲ ♟.... Manual Focus mode

–▲◀▶♟–... Low contrast during Auto Focus mode

Condensation warning

Head clog warning

Auto-focus detection zone

Low-battery warning

Clock battery warning

Time

12 hour indication with AM or PM

TIME ....Time setting is performed.

AUTO DATE appearing ....Auto Date mode

Fading indicator

FADER ....Fade function is engaged.

Operating mode

REC ....Recording is being performed.

— ....Recording Standby mode

≡PAUSE≡ ....Recording Standby mode

–CASSETTE–...No cassette or a cassette without its safety tab is loaded.

S-VHS mode indicator

Recording mode indicator

EP.........Recording is performed in EP mode.

Remaining tape time

Tape counter

M ....Counter memory

Indiex code marking

Special recording function

ANIM ....Animation mode

T.LAPSE ....Time Lapse mode

S.TIMER ....Self Timer mode

Recording time

● 1/4S ....1/4 sec. recording

● 1/2S ....1/2 sec. recording

● 1S ....1 sec. recording

Interval time

● II 15S ....Interval 15 sec.

● II 30S ....Interval 30 sec.

● II MIN ....Interval 1 min.

● II 5 MIN ......Interval 5 min.

Insert Editing/Audio Dubbing

○............. Insert editing

●............. Audio dubbing

○ ●.......... AV insert editing

Date

Month/Day/Year

DATE ....Date setting is performed.

Age

BIRTHDAY ....Age setting is performed.

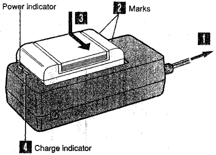
POWER SUPPLY SYSTEM

The convenient 3-way power supply system gives you a choice of the most appropriate power supply unit, depending on the application.

WITH BATTERY PACK

The battery pack has been kept in the uncharged state for shipment. Therefore, before use, be sure to charge it.

Charging procedure



AC power adapter/battery charger AA-V3U

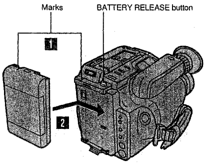
1 Connect the AC power cord to a wall outlet. (The POWER indicator will light.)
2 Align the marks on the battery pack and adapter.
3 Slide the battery pack in the direction of the arrow until it locks in place.
4 When charging is completed, the CHARGE indicator that is red turns green.

- The charging time differs depending on the ambient temperature and the condition of the battery pack.

Charging time

BN-V14U: 80 min.	BN-V22U: 130 min.

Attaching the battery pack



Before attaching the battery pack, insert the lithium battery. (☞ P. 10.)

1 Align mark on battery pack with similar mark on back of VideoMovie.
2 Slide the battery pack into place in the direction of the arrow, unit it locks into place.

- To remove the battery pack, press the BATTERY RELEASE button and slide out the battery pack.

Recording time

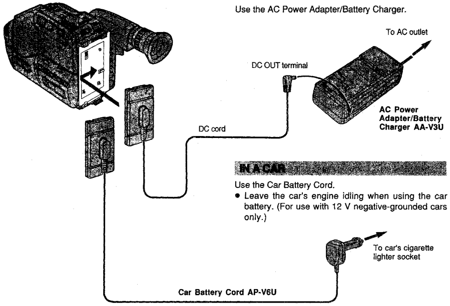
BN-V14U: 40 min.	BN-V22U: 75 min.

PRECAUTIONS

- No function is available without power supply.
- Do not use any power supply other than specified.
- Never attempt to use these power supply units with any equipment other than the VideoMovie.
- If used near a radio, the AC power adapter/battery charger may interfere with reception.
- The recording time per charge is influenced by the duration of recording standby, frequency of zooming, etc. It is safer to have spare battery packs.

WITH AC POWER

Use the AC Power Adapter/Battery Charger.


To AC outlet
DC OUT terminal
AC Power Adapter/Battery Charger AA-V3U
DC cord
To car's cigarette lighter socket
Car Battery Cord AP-V6U

IN A CAR

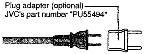
Use the Car Battery Cord.

- Leave the car's engine idling when using the car battery. (For use with 12 V negative-grounded cars only.)

When using the AC Power Adapter/Battery Charger in areas other than the USA

- The provided AC Power Adapter/Battery Charger features automatic voltage selection in the AC range from 110 V to 240 V.

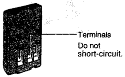
USING HOUSEHOLD AC PLUG ADAPTER
In case of connecting the unit's power cord to an AC wall outlet other than American National Standard C73 series type use an AC plug adapter, called a "Siemens Plug", as shown.
For this AC plug adapter, consult your nearest JVC dealer.



A WORD ON THE EXCLUSIVE BN-V14U/V22U BATTERY PACKS

The BN-V14U/V22U are nickel-cadmium batteries. Be sure to carefully read the caution attached to the battery pack.

- Avoid repeatedly charging without discharging. Recharging a battery pack without discharging it shortens the service life of the battery pack. Recharge it after its power is completely used, for example, when mounted on the VideoMovie and left in the Rehearsal mode, etc. Also discharge before long-term storage.

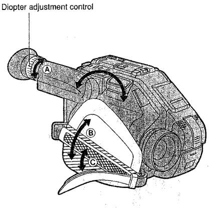


Temperature ranges:

The recharging time is based on room temperature of 20°C.
The lower the temperature, the longer the recharging time.

For charging:	10°C to 35°C	(50°F to 95°F)
For operating:	0°C to 40°C	(32°F to 104°F)
For storing:	–10°C to 30°C	(14°F to 86°F)

BASIC PREPARATIONS



POSITIONING THE VIEWFINDER

The viewfinder can be positioned for best viewability.

DIOPTER ADJUSTMENT

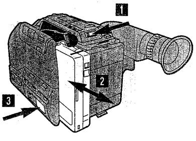
The viewfinder lens can be adjusted to suit the operator's eyesight by turning the diopter adjustment control (Ⓐ).

- First supply power, and engage the Rehearsal or Record-Pause mode.

ADJUSTING THE GRIP STRAP

1 Separate the Velcro strip to expand the loop (Ⓑ Ⓒ).
2 Pass your right hand through the loop and grasp the grip. Adjust the length of the strap to suit your hand size and refasten the Velcro strip.

LOADING AND UNLOADING A CASSETTE



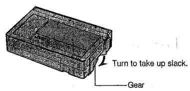
LOADING

1 Open the cassette holder by sliding the EJECT switch.
2 Insert the cassette with its label facing outward.
3 Close and lock the cassette holder by pressing the PUSH button.

UNLOADING

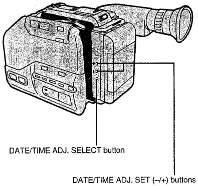
1 Slide the EJECT switch. The cassette holder will open.
2 Remove the cassette.
3 Close and lock the cassette holder by pressing the PUSH button.

Notes:



- To ensure that tape is not slack inside the cassette, turn exposed gear until slack is removed.
- Do not repeat loading and unloading of the cassette without running the tape, as this will slacken the tape, causing tape damage.
- The cassette holder can be opened even when the power is off.

DATE/TIME/BIRTHDAY SETTING


DATE/TIME ADJ. SELECT button
DATE/TIME ADJ. SET (–/+) buttons

SETTING DATE/TIME/BIRTHDAY

Before adjusting the date, time and birthday for the first time or after replacing the battery.

1 Slide the control panel cover to "CAMERA".
2 Switch the unit's power on. Then, slide the EJECT switch to open the cassette holder.
3 Press the DATE/TIME ADJ. SELECT button—the month blinks.
4 Press the DATE/TIME ADJ. SET (–/+) button to choose the correct month.
5 Press the DATE/TIME ADJ. SELECT button to select the next item to change, with the item selected changing in the sequence below:
If the DATE/TIME ADJ. SELECT button is kept pressed for more than 1.5 seconds, this will call up items rapidly for setting, and stop at the item where the button is released.
6 Procedures in steps 3 and 4 allow you to set Date and Time. After the Time has been set proceed to the Birthday setting.

Setting the "Birthday"

The VideoMovie is provided with a "Birthday" memory function so that once someone's date of birth is entered into memory, the unit can display and record his or her age, automatically calculated to the current date of the scenes.

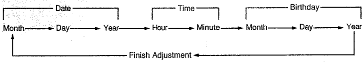
- Age-indication appears as follows:

Under one-month-old	31D
Under one-year-old	11M
Under 7-year-old	6Y11M
7 and over 7-year-old	99Y

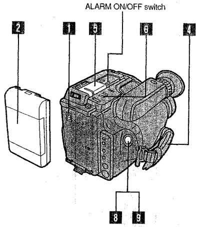
7 Make the settings for the items of BIRTHDAY as described in steps 3 and 4.
8 After all items have been set, press the DATE/TIME ADJ. SELECT button, and blinking will stop. The Date, Time and Age will be displayed.

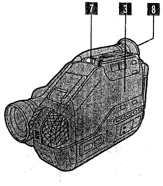
Notes:

- When the Date/Time/Birthday is set for the first time, after inputting the "BIRTHDAY" data, the Date, Time and Age (automatically calculated based on the BIRTHDAY data) appear.
- The clock begins timekeeping when the minute portion stops blinking and remains constantly lit. While the Date and Time are blinking, the clock does not keep time. Be sure to confirm the correct time when setting the Birthday.



RECORDING OPERATION





Notes:
- When a tape reaches its end during recording, the power switch itself off automatically if left for longer than 5 minutes.
- For a longer pause, set the POWER switch to off to save power.
- If the Record-Standby mode continues for longer than about 5 minutes, the unit switches itself off automatically. To restart recording, turn the power on and press the Recording Start/Stop button. This makes clean assembled recordings possible even after a long pause.

1. Preparations

1 Set the S-VHS recording mode select switch as required.
Note:
- S-VHS recordings can only record with S-VHS-C tapes.

2 Supply power.(☞ P.12.)
3 Insert a video cassette correctly. (☞ P.14.)
4 Adjust the grip strap. (☞ P.14.)

2. To enter the Record-Standby mode

5 Set the control panel cover to "CAMERA".
6 Set the SP/EP recording mode select switch as required.
7 Turn on the VideoMovie. Set the POWER switch to ON.

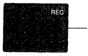
The power indicator will light.

— The VideoMovie enters the Record-Standby mode. The aimed-at scene will appear on the viewfinder screen.

"—" or "EP —"
Record-Standby mode indication

3. To shoot the scene

8 To start the recording. Determine the composition by referring to the viewfinder image and press the Recording Start/Stop button.



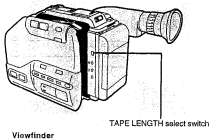
"REC" or "EP REC"
Recording mode indication

9 To stop recording temporarily. Press the Recording Start/Stop button once again.
- To restart recording, press the Recording Start/Stop button.
- Repeating steps 8 and 9 produces assemble recordings.

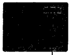
TRIGGER ALARM

When the ALARM ON/OFF switch is set to ON, an electronic alarm beeps as follows;
- Recording start...once
- Recording stop...twice

This alarm helps prevent recording errors.



Viewfinder



EP mode; 90 MIN → 80 MIN → 70 MIN → 60 MIN → 50 MIN → 45 MIN → 40 MIN → 35 MIN

SP mode; 30 MIN → 25 MIN → 20 MIN → 15 MIN → 10 MIN → 5 MIN → 4 MIN → 3 MIN → 2 MIN (blinking) → 1 MIN (blinking) → 0 MIN (blinking) → TAPE END

* — MIN... (Now calculating)

5 minutes

STOP
RECORD PAUSE
PLAY PAUSE (STILL)
→ POWER OFF

REMAINING TAPE TIME INDICATION

The remaining tape time is displayed in the viewfinder as shown.

- Set the TAPE LENGTH select switch according to the tape used.
  ST-C20: When using a tape with 20-minute recording time or less.
  ST-C30: When using a tape with recording time of more than 20 minutes (SP).

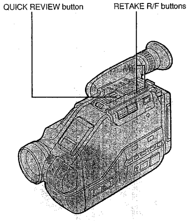
Notes:
- The indication will start blinking when the remaining tape time reaches 2 minutes.
- The indicated remaining time is approximate.
- The time required to calculate the remaining tape length and the accuracy of the calculation may vary according to the type of tape used.
- "TAPE END" indicator appears when the tape reaches its end. "TAPE END" indicator also appears when a cassette is loaded whose tape is already at its end.

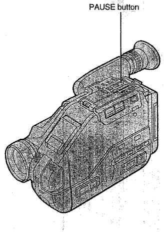
POWER SAVE AND TAPE PROTECTION CIRCUIT

- To save power, the VideoMovie switches itself off automatically in the following situations:
  (1) When left for longer than 5 minutes in the Stop mode.
  (2) When left for longer than 5 minutes in the Record-Standby (Record-Pause) mode.
- To protect the tape, the VideoMovie (regardless of whether battery-operated or AC-powered) releases tape tension slightly and switches itself off automatically if left for longer than 5 minutes in the Record-Standby (Record-Pause) mode.
- For the same reason, the VideoMovie enters the Stop mode if left for longer than 5 minutes in the Still (Play-Pause) mode.

AUTO REHEARSAL

Reheasal mode is automatically engaged in the following situations:
The control panel cover is set to the "CAMERA" position and;
= no cassette is loaded, or
= a cassette without its safety tab is loaded.
* Rehearsal mode is not engaged when the control panel cover is set to the "PLAY" position.


QUICK REVIEW button
RETAKE R/F buttons


PAUSE button

QUICK REVIEW

- If you want to review the end of the last recording for confirmation, press the QUICK REVIEW button from the Record-Standby mode; the tape will be rewound for about 2 seconds of program time and played back automatically for this section, after which it will cease in the Record-Standby mode for the next shot.

Note:

- Distortion might occur when playback starts. This is normal.

RETAKE

While recording, you may decide to re-record a certain segment. The Retake function is convenient for this.

1. Make sure the VideoMovie is in the Record-Standby mode. (If not, engage the mode.)
2. Press either RETAKE button to reach the point where you wish a new recording to start. When the RETAKE button is released, the camera will enter the Record-Standby mode again.
3. Press the Recording Start/Stop button to start recording.

Note:

Noise may appear during Retake. This is normal.

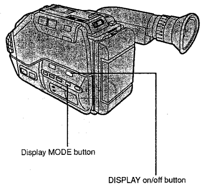
ASSEMBLE RECORDING TECHNIQUES

1 To replace the battery pack during recording

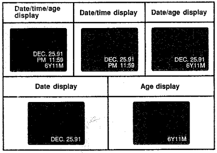
1. If the battery warning appears in the viewfinder while recording, stop recording by setting the POWER switch to OFF, not the STOP button.
2. Replace the battery pack with a charged one.
3. Set the POWER switch to ON.
   - The unit will be in the Record-Standby mode.
4. Press the Recording Start/Stop button to start recording.

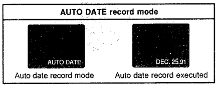
2 To record onto a partially recorded tape

1. Play back the tape to a point where you wish a new recording to start.
   - Use the REW or FF button for faster location.
2. Press the PAUSE button at the located point.
   - The unit will enter the Still mode.
3. Slide the control panel cover to "CAMERA".
4. Press the Recording Start/Stop button to start recording.


Display MODE button
DISPLAY on/off button

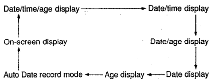
Date/time recording indications


Date/time/age display
Date/time display
Date/age display
DEC. 25.91
PM 11:59
6Y11M
DEC. 25.91
PM 11:59
DEC. 25.91
6Y11M
Date display
Age display
DEC. 25.91
6Y11M


AUTO DATE record mode
AUTO DATE
DEC. 25.91
Auto date record mode
Auto date record executed

DATE/TIME/AGE RECORDING

The date/time/age can be displayed and recorded according to the selected mode. Press the Display MODE button to cycle through the modes in the following order:


Date/time/age display
Date/time display
Date/age display
Date display
Age display
Auto Date record mode
On-screen display

AUTO DATE RECORD FUNCTION

This function allows the date (month, day and year) to be automatically recorded for about 5 seconds following the first operation of the Recording Start/Stop button:

= after changing the date.
= after a cassette is loaded, or
= after "AUTO DATE" mode is selected by the display MODE button.

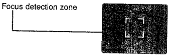
- The viewfinder indication shows the date during initial 5 seconds, then changes to "AUTO DATE".
- Auto date record reserve indication will cease to be displayed, if the DISPLAY on/off button is set to OFF.

ON-SCREEN DISPLAY

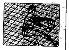
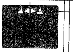
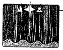
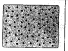
The viewfinder indications can also be displayed on the screen of a monitor connected to the VideoMovie.

- Connect the VideoMovie to a video monitor. Press Display MODE button to select the On-Screen Display mode. The viewfinder indications appear on the monitor screen. (☞ P. 11.)
- The on-screen display is available in the Rehearsal or Record-Pause mode.

ADVANCED VIDEOGRAPHY TECHNIQUES



- Correct focus may not be obtained in the following situations. In such case manual focusing should be performed to obtain proper focus.

	Two subjects at different distances overlap in the same scene.
	Low illumination.
	The subject has no contrast (differences in brightness and darkness), such as a flat, one-color wall, or a clear, blue sky, for instance.
	Low-contrast warning A dark object is barely visible in the viewfinder
	Minute patterns or identical patterns that are regularly repeated.

Focusing

Auto-focus

- The rectangular focus area, shown by the indicators in the center of the viewfinder, detects focus.

CAUTION

- When not in use, do not leave the VideoMovie in the Auto Focus mode with power on; otherwise light entering the lens will operate the auto-focus mechanism, consuming power.

Note:

- If the lens is smeared with stains or blurred with condensation, accurate focusing is not possible. Keep them clean. If they become dirty, wipe with a piece of soft cloth. When condensation occurs, dry them by wiping with a soft cloth or wait for conditions in which they become dry.

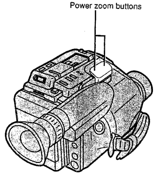
Macro shot

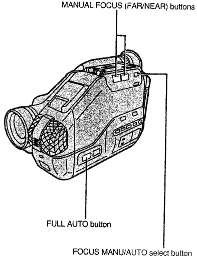
The VideoMovie's Full Range AF system can offer continuous shooting ability from close-up to infinity.

Procedure for Macro shooting

1. Press the "W" power zoom button until the lens zooms out completely.
2. Position the subject in auto-focus detection zone.

- For best results, increase illumination when shooting in the Macro mode.




MANUAL FOCUS (FAR/NEAR) buttons
FULL AUTO button
FOCUS MANU/AUTO select button

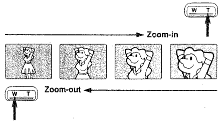
Manual focus

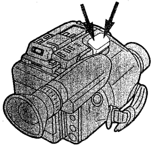
For manual focus operation, proceed as follows:

1. Press the FOCUS MANU/AUTO select button to release the Auto Focus mode. The Manual Focus indicators (▲▲) appear and focus detection zone disappears.
2. Zoom in on a subject by pressing the "T" button.
3. Focus onto it by pressing either MANUAL FOCUS button.
   - Press the FAR button.
     The ◀ indicator blinks. It will disappear when the button is released.
   - Press the NEAR button.
     The ▶ indicator blinks. It will disappear when the button is released.
   - When the focus level cannot be adjusted any farther or closer, the indicator (▲) or the indicator (▲) will blink.
4. Determine the composition by pressing the "W" button.

Notes:

- To release the Manual Focus mode (to engage the Auto Focus mode), press the FOCUS MANU/AUTO select button or FULL AUTO button. Manual focus indicators (▲▲) disappear and focus detection zone appears.
- When you use the Manual Focus mode, be sure to focus the lens in the maximum telephoto position. If you focus in on a certain subject in the wide-angle position, sharply-focused images cannot be obtained when zoomed up because the depth- of-field is reduced at longer focal lengths.





2 ZOOMING

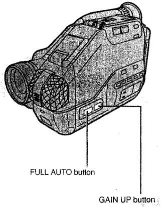
When the focal length of the lens is varied by pressing the power zoom buttons, the image appears to come nearer to or retreat from the viewer.

Procedure

- Press "T" for zooming in and "W" for zooming out.

Notes:

- Focusing may become unstable during the zooming-in operation. In this case, first zoom in in the Recording Standby mode then, after pressing the FOCUS MANU/AUTO select button to hold the focus fixed, zoom in or out in the Record mode.
- When shooting low-contrast subjects in the Zoom-in mode, the VideoMovie automatically zooms out with the low contrast indicator blinking and focus being performed.



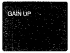
3 GAIN-UP

If lighting is or becomes insufficient while shooting, use the Gain-Up function to record dim scenes brighter.

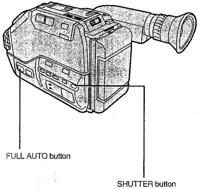
Notes:

- The scene recorded using the Gain-Up function looks grainy.
- The Gain-Up function is generally not effective when shooting in bright places.

1 Press the GAIN UP button, the Gain-Up mode is engaged and "GAIN UP" appears in the viewfinder.



2 To release the mode, press the GAIN UP button again, or the FULL AUTO button.



4 MULTIPLE-SPEED ELECTRONIC SHUTTER

The VideoMovie is equipped with a selectable high-speed shutter that allows better recording of quick movements for sharp, clear stills or slow-motion playback.
Select it when taping fast-action shots that you will want to play back later on a VCR equipped with the Still or Slow-motion mode.

1 Press the SHUTTER button to switch to the desired electronic shutter speed. This can be done while Recording or in any other mode. It continues at the selected speed until switched to another speed.

2 Select the shutter speed among 1/4000, 1/1000, 1/500, 1/250, 1/100, 1/60 and Auto (1/60 or 1/100) second by pressing the shutter speed changes in the following order:

Auto (No indication) → S60 (1/60) → S100 (1/100)
↑ ↓
S4000 (1/4000) S250 (1/250)
↑ ↓
S1000 (1/1000) ← S500 (1/500)

- When selected, the High-Speed Shutter mode is indicated on the viewfinder screen.
- In the Auto mode, usually the shutter speed is set to 1/60 sec., but changes to 1/100 sec. whenever flickering caused by light sources such as fluorescent lamp is detected.

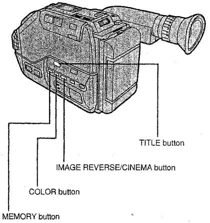
3 When finished recording the fast-action scene, switch back to the standard shutter speed by pressing the SHUTTER button until the SHUTTER indicator in the viewfinder disappears.

Notes:

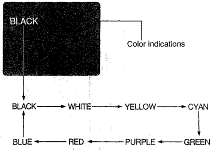
- The High-Speed Shutter mode requires slightly more subject illumination than the Auto or S60 Shutter mode. If so, switch to the Auto mode.
- Picture color may be adversely affected in the High-Speed Shutter mode when the subject is lit by alternating discharge-type light sources such as fluorescent or mercury-vapor lights.
- When playing back a section recorded in the High-Speed Shutter mode, movement of subjects in the picture may not be smooth. This is not due to any defect of the unit.
- Pressing the FULL AUTO button also restores the shutter speed to the Auto mode.

5 DIGITAL SUPERIMPOSE

The VideoMovie's Digital Superimpose function allows a title to be superimposed on a recording in a choice of 8 colors and either positive or negative (reversed) style for more creative video opportunity.



Viewfinder Indications

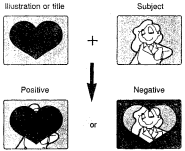


STORING A TITLE

1. Put the VideoMovie into the Record-Pause or Rehearsal mode.
   - When the " CLOCK " indication (clock battery warning) appears in the viewfinder, titles cannot be stored. Insert the lithium battery, or replace the inserted one with a new one according to the instructions on page 10.
2. Press the TITLE button.
3. Aim the lens at your title in as well-lit a location as possible.
   - If, at this point, the stripes or an old title appearing in the viewfinder prove bothersome, press the TITLE button to turn it off.
   - When storing a title, the scene visible in the viewfinder may differ slightly from that which will be recorded on the tape.
4. Press the MEMORY button for about 1 second to store the title.
   - When a title is stored poorly, check to see that the lighting is adequate and that the title is drawn with bold strokes, then shoot the title again.
   - Every time the MEMORY button is pressed, the previously recorded title stored in that page of memory will be erased, and replaced with the new title.
5. Press the COLOR button to select the color in which you want your title to appear.
6. Press the IMAGE REVERSE/CINEMA button to choose negative or positive style.
   - The MEMORY button works in both the Record-Pause and Rehearsal modes; care should be exercised not to press MEMORY accidently as this will erase stored titles.

Creating titles

Make note of the following guidelines to assure best results.
1. Create titles using dark colors on light backgrounds—black writing on white paper, for example.
2. Letters should be drawn with broad strokes.



SUPERIMPOSING A TITLE

① **Mixing a title at the beginning of a recording**
1. Put the VideoMovie into the Record-Pause mode.
2. Press the TITLE button to display your title on the viewfinder screen.
3. Confirm the color, and the positive/negative style. Color choice and positive/negative style can be changed at this point. Press the COLOR button to select a different color, and the IMAGE REVERSE/CINEMA button to choose positive/negative style.
4. Press the unit's Recording Start/Stop button to begin recording. The title will now be mixed with what you are recording.
   Press the TITLE button when you wish to end the titled portion of your recording.

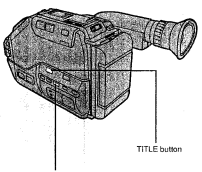
② **Inserting a title in the middle of a recording**
1. Confirm the color, and positive/negative style of your title.
   Press the TITLE button to turn it off.

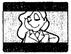
2. Shoot your live scene by pressing the Recording Start/Stop button.
   Press the TITLE button when you wish to insert your title. It will be inserted into your ongoing recording at exactly that point.
3. Press the TITLE button again to stop inserting your title with the action you are recording.

Notes:
- With title off, press the COLOR button to check the page color for about 3 seconds. The color can be changed.
- Color choice and positive/negative selections can be changed when the title is displayed in the viewfinder.
- The "Color" indication displayed in the viewfinder will not be recorded on the tape.
- When the lithium battery for the unit's clock is exhausted, the stored title will be lost.

6 CINEMA MODE RECORDING

This VideoMovie incorporates a "Cinema" mode recording function which allows you to record black bars at the top and bottom of the screen to produce cinema-like "wide-screen" effects.



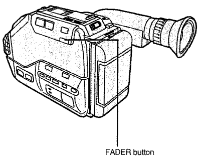


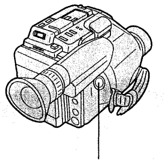
1. Set the TITLE button to OFF. Then engage the Record-Pause mode.
2. Press the IMAGE REVERSE/CINEMA button.
   - To restore the normal screen, press the IMAGE REVERSE/CINEMA button again.
   - When in the Cinema mode, pressing the TITLE button to ON superimposes the already-stored title into the cinema-effect screen. At this time, selection of the nega/posi style is possible.

Notes:
- The Cinema mode can be engaged only in the Record-Pause, Record or Rehearsal mode.
- When the title is displayed (with the TITLE button set to ON), engaging the Cinema mode is not possible.

7 FADER

This VideoMovie incorporates a fader function which allows smooth video/audio fade-in and fade-out with a white blank screen. The fader is simultaneously activated with the Recording Start/Stop button operation.

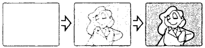




FADE-IN

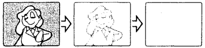
1. Aim the VideoMovie to the subject in the Record-Standby mode.
2. Press the FADER button to engage the Fade-Standby mode. "FADER" appears on the viewfinder screen.

3. Press the Recording Start/Stop button. The screen immediately becomes blank and recording begins. Fade-in starts at the moment the Recording Start/Stop button released. "FADER" in the viewfinder blinks until the fade-in is completed. If the button is not released, the screen will remain blank and be recorded (with no audio) as long as the button is kept pressed.



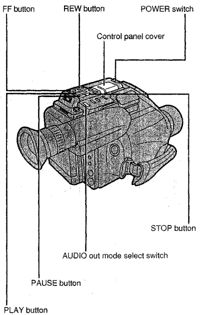
FADE-OUT

1. Start shooting as usual.
2. Press the FADER button to engage the Fade-Standby mode. "FADER" appears on the viewfinder screen.
3. Press the Recording Start/Stop button. The viewfinder indications start blinking. Fade-out starts and will be completed in about 4 seconds. When completed, the VideoMovie enters in the Record-Standby mode automatically. At this time, if the button is not released, the screen will remain blank and be recorded as long as the button is kept pressed.



Note:
- Viewfinder indication "FADER" is not recorded.

PLAYBACK



When monitoring audio

Set the AUDIO out mode select switch according to the audio track you wish to listen to. (Also effective when monitoring with the stereo earphones connected to PHONES jack.)

NORM: To listen to the sound recorded on the longitudinal (normal) audio track.

MIX: To listen to the sound recorded on both Hi-Fi and longitudinal audio tracks (mixed audio).

Hi-Fi: To listen to the sound recorded on the Hi-Fi audio track.

- When playing back a tape containing the same soundtrack on both hi-fi and normal audio tracks, a slight time lag is sensed between the two sound tracks, probably with some distortion, in the MIX position. Therefore, in such a case, use the NORM or Hi-Fi position.
- The AUDIO out mode select switch is effective in the Rehearsal and Record-Pause mode as well the Record mode.

The VideoMovie permits playback of recorded "S-VHS-C" and "VHS-C" video cassettes.
For connections refer to pages 30 and 31.

Preparations

- With a television equipped with audio/video (or S-VIDEO) input connectors, engage the Video (or AV) mode of the television.
- With a regular television, set the antenna select switch of the RF unit to VIDEO and the television's channel selector to your video channel (specified AV channel).

1. Supply power. (Battery or AC operation ☞ P. 12 and 13.)
2. Slide the control panel cover to "PLAY".
3. Slide the POWER switch to turn power on.
4. Insert a pre-recorded S-VHS-C or VHS-C cassette.
   - Ensure that tape is not slack inside the cassette, then load the cassette correctly. ☞ P. 45.
5. Press PLAY button. Playback will start.
   - To stop playback, press the STOP button.

STILL PLAYBACK

Press the PAUSE button during playback. The picture will stop on the screen.

- After about 5 minutes of still playback, the VideoMovie enters the Stop mode automatically for tape protection and switches itself off.

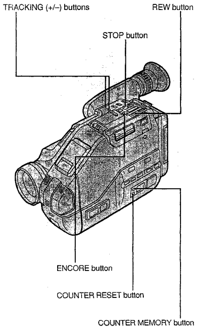
SHUTTLE SEARCH

Fast-speed playback in the forward direction:
Press the FF button in the Play mode. Playback will be speeded up to 3 times normal speed in the SP mode, 7 times in the EP mode.

Fast-speed reverse playback:
Press the REW button in the play mode. The tape will be played back in the reverse direction at 3 times normal speed in the SP mode, 7 times in the EP mode.

Notes:

- For brief fast-speed searching, keep the FF or REW button pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled.
- Noise bars will appear and pictures may become monochrome while in these modes. This is not due to any defect of the unit.



Note:
Tracking alarm will not beep when the ALARM ON/OFF switch is set to "OFF".

DIGITAL TRACKING

Digital Tracking adjustment is performed automatically to obtain optimum pictures during playback. Adjust the tracking manually when noise bars appear on the screen or when the Hi-Fi stereo sound breaks up.

MANUAL TRACKING

Manual tracking might be more effective, depending on video cassette being used.

1. Press both TRACKING (+/–) buttons simultaneously for switching to cancel the Auto Tracking mode and enter the Manual Tracking mode.
2. Adjust to the best picture possible by pressing either TRACKING (+/–) button.

Notes:

- When re-engaging the Automatic Digital Tracking mode, press both TRACKING (+/–) buttons.
- For tapes recorded on another deck, tracking adjustment might not be effective.

TRACKING ALARM FUNCTION

- Beeps when the Auto mode is switched to the Manual mode.
- Beeps when adjusting the tracking level in the Manual tracking mode. While keeping the TRACKING button pressed, beeping continues as the level of tracking changes, and beeping stops when the end of the tracking level is reached.

COUNTER MEMORY FUNCTION

This VideoMovie incorporates a counter memory function which facilitates locating a specific tape segment.

1. Press the COUNTER RESET button to reset the counter to "0000".
2. Press the COUNTER MEMORY button. The "M" mark will appear.
3. After recording or playback, press the STOP button, then the REW button. The tape will automatically stop at the counter reading of around "0000".
4. Press the PLAY button to start playback.

Notes:

- The counter memory function is effective in the Fast Forward mode as well.
- To cancel the memory function, press the COUNTER MEMORY button.
- When the power supply unit is disconnected, the counter memory function is instantly cancelled.

ENCORE PLAYBACK

The Encore function allows instant replay of a scene.

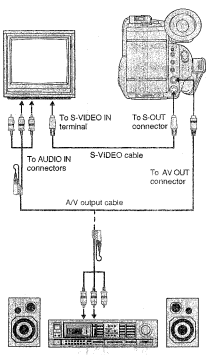
- Press the ENCORE button during playback. The tape is rewound for approx. 10 seconds of program time, then replay starts.

CONNECTIONS TO A TELEVISION FOR PLAYBACK

1 Connection to a television equipped with an S-VIDEO input connector

In this situation, use the S-VIDEO cable and the A/V output cable.

- Connect the provided A/V output cable to an external audio system, or the TV's audio input connectors. (If your TV set is not equipped with stereo capability, connect to its L-channel audio input.)


To S-VIDEO IN terminal
To S-OUT connector
To AUDIO IN connectors
S-VIDEO cable
To AV OUT connector
A/V output cable

Procedure

- Connect the S OUT connector of the VideoMovie to the S-VIDEO IN terminal if the S-VIDEO equipped television.
- Connect the AV OUT connector of the VideoMovie either to the television's AUDIO IN connectors or the AUX IN or TAPE MONITOR terminals of an amplifier.

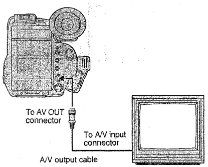
Application

- With this setup, you can enjoy prerecorded S-VHS Hi-Fi tapes in stereo while viewing them on an S-VIDEO-equipped television.
- With this setup, monitoring while shooting is also possible.

CAUTIONS:

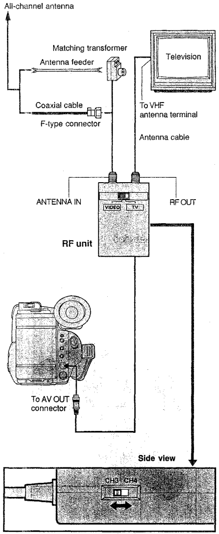
- The VideoMovie has a wide dynamic range in the Hi-Fi audio mode. It is recommended that you check the maximum level if you are going to listen to the Hi-Fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If neither is shielded, do not place the speakers adjacent to the television, otherwise the video playback picture will have interference.

2 Connection to a television equipped with A/V input connector


To AV OUT connector
To A/V input connector
A/V output cable

In this situation, use the A/V output cable.

- Simply connect the AV OUT connector of the VideoMovie to the A/V input connector of the television.
- Use the Video (or AV) mode specified on the television, in stead of tuning to channel 3 or 4.


All-channel antenna
Matching transformer
Antenna feeder
Television
Coaxial cable
F-type connector
To VHF antenna terminal
Antenna cable
ANTENNA IN
RF OUT
VIDEO
TV
RF unit
To AV OUT connector
Side view
CH3 CH4

3 Connection to a television not equipped with A/V input connector

In this situation, use the RF unit.

1. Set the out put channel select switch of the RF unit to CH3 or CH4.
   - The RF unit permits playback of the video and audio recordings through a TV receiver. The signals from the RF unit are viewed through a vacant channel not used for broadcasting in your area.
   - The RF unit has been set to CH3 prior to shipment. Reset the channel to CH4 (using a screwdriver) in areas where channel 3 is employed for broadcasting.
   - This is your video channel. To view video cassettes, always set the TV channel selector to either channel 3 or 4.
2. Remove the antenna cable from the TV receiver.
3. Connect the antenna cable to the ANTENNA IN terminal of the RF unit.
   - Refer to the connection diagram on the next page.
4. Connect the RF OUT terminal of the RF unit to the 75-ohm coaxial antenna terminal of the television using the antenna cable.
5. Connect the VIDEO/AUDIO INPUT cable of the RF unit to the AV OUT connector of the VideoMovie.

OPERATION

Viewing video cassettes being played back with the VideoMovie

To view video cassettes or to monitor the recording, set the VIDEO/TV switch of the RF channel selector to the channel corresponding to the RF-output channel (3 or 4).

Viewing television programs

Set the VIDEO/TV switch to TV, and the TV receiver will function as usual.

Precautions for RF unit.

- For exclusive use with the VideoMovie.
- Do not disassemble or remodel the RF unit.
- Do not expose it to strong shocks.
- Unplug the connected equipment during lightning storms. (Never touch the antenna cable.)

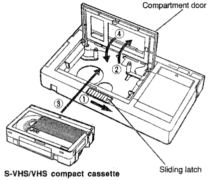
USING THE CASSETTE ADAPTER

By using the provided Cassette Adapter, an S-VHS-C or a VHS-C video cassette recorded with this VideoMovie can be played back with any deck-type S-VHS video recorder (deck-type VHS video recorders can play back only cassettes recorded in VHS). Also, an S-VHS-C or a VHS-C video cassette installed in the cassette adapter is fully compatible for both recording and playback on any deck-type S-VHS-C or VHS video recorder.

Note:
- Only compact video cassette tapes marked S-VHS-C or VHS-C can be used with the Cassette Adapter.

- **C-P6U Cassette Adapter**

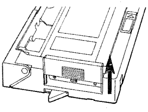
Being battery-operated, the C-P6U performs tape loading and unloading automatically.



Note:
- During special-effects playback (slow motion, still frame, etc.) the picture may vibrate or noise bars may appear on the screen.

Inserting the battery into the cassette adapter

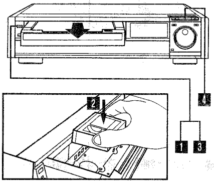
1. Remove the battery cover by sliding it up.
2. Install one "AA (R6)" battery and reattach the cover.



USING THE VHS/VHS-C COMPATIBLE VCR

An S-VHS/S-VHS-C/VHS/VHS-C compatible VCR can directly play back an S-VHS-C/VHS-C cassette without using a cassette adapter.

(S-VHS/S-VHS-C/VHS/VHS-C compatible VCR such as the JVC HR-SC1000U)



1. Press the OPEN/CLOSE button.
2. Place a cassette on the tray.
3. Press the OPEN/CLOSE button again.
4. Press the PLAY/x2 button. Playback starts.

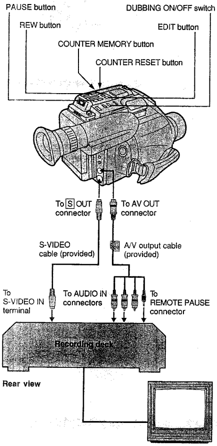
- When using an S-VHS/S-VHS-C/VHS/VHS-C compatible VCR, read the instruction manual of the VCR carefully.

EDITING TECHNIQUES

1 MASTER EDIT CONTROL SYSTEM (Assemble Editing) (When using a JVC VCR equipped with a Remote Pause terminal)

This feature functions only when using a designated JVC VCR equipped with a Remote Pause terminal. The Master Edit Control system enables control of the VCR via the VideoMovie's controls, for quality preroll editing without transition-point gaps and distortion.

Preparation
- Connect the VideoMovie and the recording deck as in the diagram as following.
- Turn on both the VideoMovie and the recording deck.
- Correctly insert the appropriate cassettes into the VideoMovie and the recording deck.



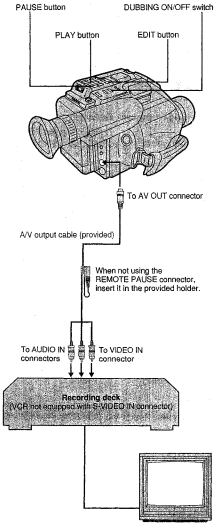
1. Engage the recording deck's Record-Pause mode. (At this time, the tape in the deck winds backward for 1.3 seconds.)
2. Set the DUBBING ON/OFF switch of the VideoMovie to ON.
3. Engage the VideoMovie's Play mode to locate the edit-out point on the tape. When this point is reached, press PAUSE.
4. Press COUNTER RESET on the VideoMovie then press COUNTER MEMORY. "M 0000" will appear in the viewfinder.
5. Press REW to locate the edit-in point. When it is reached, engage the Still mode.
6. Press EDIT on the VideoMovie to start editing.
   - At this time, the VideoMovie and the recording deck carry out the following procedure automatically.
     1) The VideoMovie prerolls the tape for 5 seconds then starts playback to stabilize the tape run.
     2) After the VideoMovie has played back for 3.7 seconds, it sends a command signal to the recording deck. The deck then starts playback together with the VideoMovie for 1.3 seconds.
     3) When the VideoMovie's tape reaches the edit-in point, the deck starts recording in synchronization with it.

Note:
- There are some VCRs which are not compatible with the Master Edit Control system.

7. When the VideoMovie's tape reaches the edit-out point (counter reading of "0000"), the VideoMovie enters the Still mode and the recording deck enters in the Record-Pause mode automatically.
   - Repeat these steps as required.
   - When the tape reaches the preset edit-out point during the dubbing operation, it may stop slightly before or after the designated point on the tape.
   - With an S-VHS VCR equipped with an S-VIDEO IN terminal, use the provided S-VIDEO cable for connection on the left to obtain higher-quality dubbing result.

TAPE DUBBING (Dubbing to a second recorder)

In order to perform simple dubbing of an entire tape, proceed as follows.


PAUSE button
DUBBING ON/OFF switch
PLAY button
EDIT button
To AV OUT connector
A/V output cable (provided)
When not using the REMOTE PAUSE connector, insert it in the provided holder.
To AUDIO IN connectors
To VIDEO IN connector
Recording deck
(VCR not equipped with S-VIDEO IN connector)

Preparations

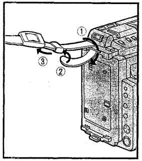
- Make connections according to the diagram on the left.
- Turn on all components' power.
- Correctly insert the appropriate cassettes.
- Set the DUBBING ON/OFF switch to ON.

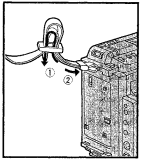
1. Engage the connected recorder's Record-Pause mode, and press the VideoMovie's PLAY and PAUSE buttons together to engage its Pause mode.
2. Press the VideoMovie's PLAY button and engage the connected recorder's Recording mode to start dubbing. (The VideoMovie starts playback; the recorder starts recording.)
3. To edit out unwanted material, engage the recorder's Record-Pause mode.
   - If using with a JVC VCR equipped with a Remote Pause terminal, perform as follows:
     1) Make connections according to the diagram on the left.
     2) Engage the connected recorder's Record-Pause mode.
     3) Press the EDIT button of the VideoMovie. The deck's recording begins in synchronization with the VideoMovie's playback start.

- With an S-VHS VCR equipped with an S-VIDEO IN terminal, use the provided S-VIDEO cable for connection as described on page 33 to obtain higher-quality dubbing results.

USING ACCESSORIES

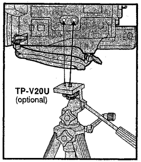
ATTACHING THE SHOULDER STRAP (provided)





1. Loop the end of the strap over the top of the eyelet ①, then, folding it back, thread the end of the strap first through the keeper ②, then the buckle ③. Making sure that the strap is not twisted, repeat the above procedure to attach the other end of the strap to the other eyelet.
2. Adjust the shoulder strap to the desired length ①, then slide both keepers up snug against the eyelets to prevent the strap from slipping ②.

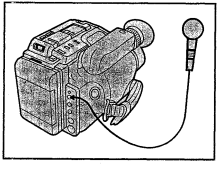
TRIPOD MOUNTING


TP-V20U
(optional)

Align the screw and camera direction stud of the tripod with the camera's tripod mounting socket, them firmly tighten the screw.

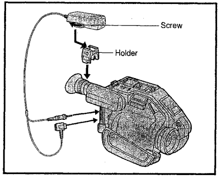
EXTERNAL MICROPHONE

To use another microphone, do the following:



Plug the external microphone's cord into the MIC jack.

WIRELESS REMOTE CONTROL KIT RM-V50U (optional)


Screw
Holder

- Attaching the receiver.
Connect the Remote plug to the REMOTE jack and AV plug to the AV OUT connector.

USING THE REMOTE CONTROL UNIT

The remote control unit permits VCR functions to be controlled from a distance.

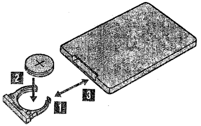
- Functions of the remote control unit's control buttons vary depending on the VideoMovie's control panel cover postion.

Buttons	Functions	
	With the VideoMovie's control panel cover set to "CAMERA".	With the VideoMovie's control panel cover set to "PLAY".
START/STOP	Functions same as the Recording Start/Stop button of a VideoMovie.	
REW/RETAKE	Retake (Rewind)	Rew/Rew Shuttle Search
FF/RETAKE	Retake (Forward)	FF/FF Shuttle Search
REC TIME	Animation/ Time-Lapse	—
INTERVAL TIME	Self-Timer/ Time-Lapse	—
VISS	Index Code Marking	—
PLAY	—	Playback/Start
PAUSE	—	Pause
STOP	—	Stop
INSERT	—	Insert Editing
AUDIO DUB	—	Audio Dubbing

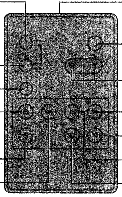
LITHIUM BATTERY INSERTION

1. Pull out the battery holder in the direction of the arrow.
2. Insert the lithium battery (CR2025), with its plus (+) side up, into the battery holder.
3. Replace the holder in the direction of the arrow until it clicks in place.

*Read "Warning on lithium battery" on page 10.



- The remote control unit can operate the VideoMovie from a distance of up to 5 m (16.4 ft).



REC TIME button
For Animation and Time-Lapse functions. ☞. P. 38 and 40.

INTERVAL TIME button
For Self-Timer and Time-Lapse functions. ☞. P. 39 and 40.

VISS button

INSERT button

AUDIO DUB button

REW/RETAKE button

Infrared beam transmitting window

START/STOP button

ZOOM (T/W) button

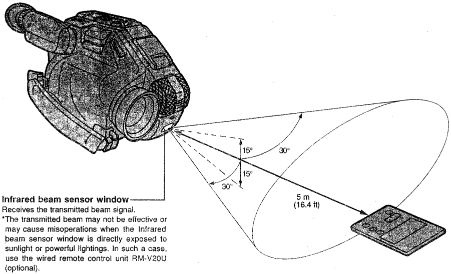
FF/RETAKE button

PAUSE button

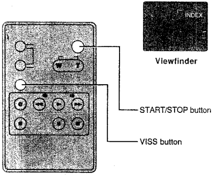
PLAY button

STOP button

In addition to operation of the VideoMovie's basic deck functions, the remote control unit offers a variety of additional recording functions. ☞. P. 37 through 41.



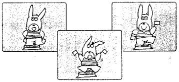
Infrared beam sensor window
Receives the transmitted beam signal.
*The transmitted beam may not be effective or may cause misoperations when the Infrared beam sensor window is directly exposed to sunlight or powerful lightings. In such a case, use the wired remote control unit RM-V20U (optional).

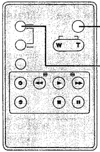


INDEX CODE MARKING

The VHS Index Search System (VISS) gives you automatic access to any point you select on a recording. Only the marking aspect of the Index Search System is included in this unit. It allows index codes to be placed on recorded tape for convenient dubbing or editing on VCRs with an Index Search function.

- Press the VISS button once to put an index code onto the tape. The INDEX mode indication blinks in the viewfinder during the marking process.
- When the "INDEX" indication appears in the viewfinder, no VideoMovie functions can be executed.
- If the VISS button has been pressed in the Record-Pause mode, an index code is put at the point where the START/STOP button is pressed.



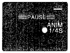


ANIMATION

The Animation function produces the illusion of movement in otherwise stationary scenes or objects. This technique is accomplished by shooting a series of slightly different pictures of the same scene or slightly different poses of the same object for a brief period of time.

1. Set the Recording mode switch to "SP".
2. Put the VideoMovie in the Record-Pause mode.
3. Press the REC TIME button.

- The following information will appear in the viewfinder with an initial setting for 1/4S to show the camera is set to record for about 1/4 second.



Viewfinder

4. Press the REC TIME button again to select the desired recording time. The following sequence of time setting is displayed with each press of the button:

1/4S → 1/2S → 1S → (regular recording mode) → 1/4S

5. Press the START/STOP button after focusing the VideoMovie on the subject.
   - Recording stops automatically in the Record-Pause mode after the selected period of time.
6. Repeat step 5 for the required number of pictures.
7. Playback the recorded series to check if results were satisfactory.

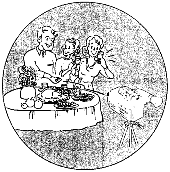
To release the Animation mode

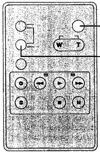
Press the REC TIME button until the "ANIM" indicator in the viewfinder disappears, or slide the control panel cover to "PLAY".

- The Animation mode can only be engaged from the Record-Pause mode.

Notes:

- Keep the VideoMovie steady in one position when filming the series of shots for best results. Mounting the VideoMovie on a tripod is recommended.
- Before recording in the Animation mode at the very beginning of a tape, set the VideoMovie to the Recording mode for about 5 seconds, so that the tape runs smoothly. Using the Fade-in function at this point is a good way to begin an animated program.
- Fade-in/out is not possible while the Animation or Time-Lapse shooting.

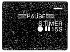




SELF-TIMER

The Self-Timer function allows you to set the amount of time delay before recording starts after the START/STOP button has been pressed. If the VideoMovie has been secured, the operator can enter the picture before actual recording begins.

1. Put the VideoMovie into the Record-Pause mode.
2. Press the INTERVAL TIME button.
   - The following information will appear in the viewfinder with an initial setting for 15S to show the VideoMovie is set for a 15-second delay before recording begins.



Viewfinder

3. Select the desired interval time by pressing the INTERVAL TIME button repeatedly. The following sequence of time setting is displayed with each press of the button:

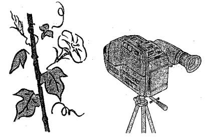
15S → 30S → 1M → 5M → (regular recording mode) → 15S

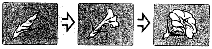
4. Press the START/STOP button. When the selected time has elapsed, recording begins automatically.
   - When performing Self-Timer shooting, the tally lamp will start blinking approximately 10 seconds before the actual recording begins. Then when recording starts, the lamp lights normally to indicate recording is in progress.

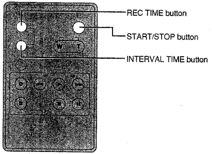
To release the Self-Timer mode

When "–" is not blinking:
Press the INTERVAL TIME button continuously until the Self-Timer indication goes off.
When "–" is blinking:
Press the START/STOP button to stop the blinking, then press the INTERVAL TIME button continuously until the Self-Timer indication goes off.

- Turning the power off and on once engages the regular Record-Pause mode.







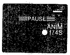
To release the Time-Lapse mode

When "–" is not blinking:	Press the INTERVAL TIME and REC TIME buttons continuously until the Time-Lapse indication goes off.
When "–" is blinking:	Press the START/STOP button to stop the blinking, then press the INTERVAL TIME and REC TIME buttons continuously until the Time-Lapse indication goes off.

4 TIME-LAPSE

The Time-Lapse function allows automatic sequential on/off recording at preset time spans. With the VideoMovie continuously focused on a specific scene or object, the resulting recording will show subtle changes (such as shifts in cloud formations, plant growth etc.) over an extended period of time.

1. Set the Recording mode switch to "SP".
2. Put the VideoMovie into the Record-Pause mode.
3. Press the REC TIME button.
   - The following information will appear in the viewfinder with an initial setting for 1/4S to show the VideoMovie is set to record for 1/4 second.

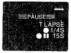


Viewfinder

- Select the desired recording time by pressing the REC TIME button repeatedly. The following sequence of time settings is displayed with each press the button:

1/4S → 1/2S → 1S
(regular recording mode)

4. Press the INTERVAL TIME button.
   - The following information will appear in the viewfinder with an initial setting for 15 seconds.



Viewfinder

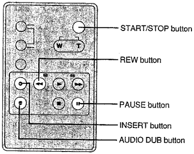
5. Select the desired interval time by pressing INTERVAL TIME button repeatedly. The following sequence of time settings is displayed with each press of the button:

15S → 30S → 1M → 5M
(regular recording mode)

6. Press the START/STOP button to start the Time-Lapse recording. The selected recording time and interval will alternate automatically.
   - The tally lamp functions in the same way as in Self-Timer shooting.

5 INSERT EDITING

Insert editing means recording a new scene into a section of prerecorded tape so that a part of the original recording can be replaced with a new sequence without excessive picture distortion at the edit-in and edit-out points. In the Insert Edit mode, the original audio on the audio track remains unchanged.



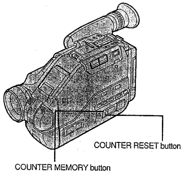
1. Locate the desired edit-out point on the VideoMovie's tape and press PAUSE.
2. Press RESET to obtain a "0000" reading, then press MEMORY to obtain an "M" indication in the viewfinder.
3. Press REW to rewind the tape a little beyond the beginning of the scene your wish to insert.
4. Press PAUSE exactly at the beginning of the scene you wish to insert.
5. While holding INSERT pressed, press PAUSE. The VideoMovie enters the Insert Edit mode with the scene at which the VideoMovie is aimed appearing on the screen for monitoring.
6. Press the START/STOP button to insert the new sequence.
7. When the counter reading of "0000" is reached, insert editing stops automatically and the VideoMovie enters the Playback mode.

Notes:
- When in the Still mode, the counter indication may be blurred. This is normal.
- When the tape reaches the preset edit-out point during the editing operation, it may stop slightly before or after the designated point on the tape. Also, at that time, noise bars may appear momentarily. Neither of these is a defect of the unit.
- Only video and Hi-Fi audio signals are recorded in the Insert Editing mode. When the normal sound is to be recorded, press the AUDIO DUB and PAUSE buttons simultaneously in the Insert Pause mode. When INSERT and PAUSE buttons are pressed simultaneously again, the unit re-enters the Video-signal-only Recording mode.

6 AUDIO DUBBING

Audio dubbing means recording a new soundtrack on a pre-recorded tape, i.e., replacing the original sound with new audio material. Audio dubbing is applicable only to the longitudinal audio track (normal audio). Audio dubbing on the Hi-Fi audio track cannot be performed.

Precautions
- Tapes with their safety tabs removed cannot be audio dubbed. Reseal the safety tab slot to perform the dubbing.
- If whistling or howling is heard during audio dubbing, reduce the TV volume of move the mike farther away from the TV.
- When dubbing from a microphone, connect the microphone to the VideoMovie.

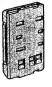


1. Locate the desired edit-out point on the VideoMovie's tape and press PAUSE.
2. Press COUNTER RESET on the VideoMovie to obtain a "0000" reading, the press COUNTER MEMORY on the VideoMovie to obtain an "M" indication in the viewfinder.
3. Press REW to locate more quickly the place on the tape you want audio dubbing to begin.
4. Press PAUSE at the exact beginning point for audio dubbing.
5. While pressing AUDIO DUB, press PAUSE to enter the Audio Dub Standby mode.
6. When you are ready, press PLAY to begin audio dubbing.
7. When the counter reading of "0000" is reached, audio dubbing stops automatically and the VideoMovie enters the Playback mode.

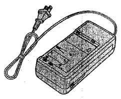
SYSTEMS FLEXIBILITY

For maximum enjoyment, make the most of the provided or optional accessories depending on the situation.

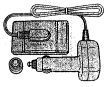
- **High-capacity battery pack BN-V14U**
- **Super-high-capacity battery pack BN-V22U**



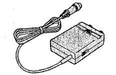
- **AC power adapter/battery charger AA-V3U**
  Use to power the VideoMovie with household AC current or charge the battery pack.



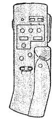
- **Car battery cord AP-V6U**
  Use to power the VideoMovie using car battery.



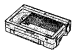
- **RF unit RF-V3U**
  Use to connect the VideoMovie to a regular television for playback.



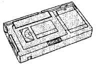
- **Remote control unit RM-V50U/RM-V20U**
  Controls VideoMovie's VCR functions from a distance.



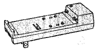
- **S-VHS-C cassettes ST-C30/C20**
  VHS-C cassettes TC-30/20
  Allows 30/20 minutes of S-VHS or VHS recording and playback respectively.



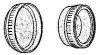
- **Cassette adapter C-P6U**
  Enables the S-VHS-C/VHS-C cassette to be used with regular S-VHS/VHS machines.



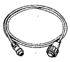
- **Battery charger BH-VC10U**
  Use to charge the battery pack.



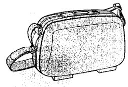
- **Conversion lens kit GL-V7U**
  Consists of telephoto (1.4x) and wide-angle (0.7x) conversion lenses.



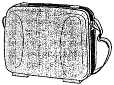
- **Conversion cable VC-V810U**
  For connecting the VideoMovie to a VCR equipped with a 10-pin camera connector.



- **Active carrying case CB-V26U**



- **System carrying case CB-V38U**
  Use to carry the VideoMovie together with basic accessories.



SUPPLEMENTAL INFORMATION

What is "color temperature"?

Light is composed of various color components in different proportions. A relationship exists between the temperature of a light source and the color components of the emitted light; as the temperature rises, the color of the light varies from red, orange, yellow, white to blue in that order. "Color temperature" is a value that expresses differences in color among light sources, measured in Kelvin degrees. Bluish light has a higher color temperature than reddish light.

What is "white balance"?

Making the colors look natural on TV is what white balance is all about. Because a camera is not as adaptable as the human eye, if a light source is reddish, white subjects in that light are recorded as reddish. White balance adjustment is performed to compensate for color temperature variations of light so that whites are reproduced as white. Correct white balance makes all other colors correct. The VideoMovie can perform automatic white balance adjustment. However, if illumination is insufficient, white balance adjustment cannot be performed. To obtain correct colors, therefore, sufficient illumination is essential.

What is "illuminance"?

"Illuminance" (also called "luminance") is the intensity or brightness of light, expressed in lux. The VideoMovie is designed to provide best pictures under the conditions of a 700-lux (67 fc) illuminance, although shooting is possible all the way down to 3 lux (0.3 fc). To obtain good pictures in very bright light, the use of an ND (neutral density) filter is recommended. (See chart on the right.)

How to get good color pictures.

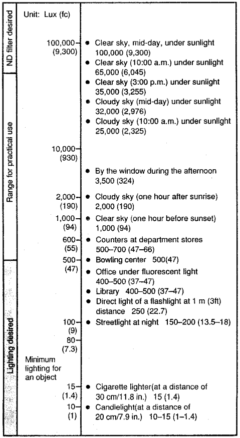
The simplest way is to provide sufficient lighting (close to the camera's reference illuminance) and accurately adjust the camera to the color temperature of that lighting. If light sources of different color temperatures are used together, accurate white balance adjustment is very difficult. For example, if natural light is mixed with artificial light, which is likely to occur next to windows, correct colors of the subject are difficult to obtain. It is recommended in such cases that curtains in the room be closed to shut out light from outside. Also, when artificial lighting devices are used, they should all have the same color temperature. For example, it is recommended that incandescent or halogen lamps not be used together with fluorescent lighting.

Color temperatures of various artificial lighting

Type of illumination		Color temperature
Tungsten lamp for home use		2800 K
Tungsten lamp for photographic use		3200 K
Quartz-halogen lamp		
Blue lamp for photographic use		5000 K
Fluorescent lamp	Warm white	3500 K
	White	4500 K
	Daylight type	6500 K

Illuminance chart

- The values on this chart are approximated to give you a rough reference.



- Clear sky, mid-day, under sunlight 100,000 (9,300)
- Clear sky (10:00 a.m.) under sunlight 65,000 (6,045)
- Clear sky (3:00 p.m.) under sunlight 35,000 (3,255)
- Cloudy sky (mid-day) under sunlight 32,000 (2,976)
- Cloudy sky (10:00 a.m.) under sunlight 25,000 (2,325)
- By the window during the afternoon 3,500 (324)
- Cloudy sky (one hour after sunrise) 2,000 (190)
- Clear sky (one hour before sunset) 1,000 (94)
- Counters at department stores 500–700 (47–66)
- Bowling center 500(47)
- Office under fluorescent light 400–500 (37–47)
- Library 400–500 (37–47)
- Direct light of a flashlight at 1 m (3ft) distance 250 (22.7)
- Streetlight at night 150–200 (13.5–18)
- Cigarette lighter(at a distance of 30 cm/11.8 in.) 15 (1.4)
- Candlelight(at a distance of 20 cm/7.9 in.) 10–15 (1–1.4)

CAUTIONS

For safety, strictly observe the following instructions.

- Do not open the cabinet.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not use the unit when there is lightning in the vicinity. Disconnect the power cable of connected equipment.

Avoid using the unit under the following conditions:

- Places subject to excessive humidity or dust.
- Near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
- Places subject to soot or steam such as near a cooking stove.
- Places subject to excessive shock or vibration.
- Near a television set (rolling pictures or howling might result).
- Extremely hot places.

Do not expose the unit to high temperatures over 40°C (104°F) for long periods.

If the unit should be subjected to direct sunlight, or left in a closed car in summer, or placed near a heater, the CCD and the auto-focus sensor may deteriorate and the cabinet may become deformed. Furthermore, this also may cause the transistors and other electronic and mechanical parts to malfunction. Remember the following:

- Do not leave the unit in places of over 50°C (122°F).
- Do not use the unit in places of over 40°C (104°F).
- Do not use the unit in places of below 0°C (32°F).
- Protect the unit from excessively dry or humid conditions (below 35% or above 80% humidity).
- For long storage, select a place between –20°C (–4°F) and 30°C (86°F).

Take special care for protection of the unit.

- Do not allow the unit to become wet.
- Do not leave the unit in closed cars on hot summer days.
- Take special care not to drop the unit or strike it against hard objects. Protect from shocks during transportation.

Make it a rule to observe the following instructions.

- Do not remove the battery pack or disconnect other power supply units during recording or playback before pressing the POWER switch to OFF. If not observed, this will cause tape damage.
- When the unit is not in use, remove the battery pack.

Keep the lens and viewfinder eyepiece always clean.

- When the lens if dirty or dusty, blow it off first and then gently wipe with a soft brush or lens cleaning paper.
- The lens is likely to become moldy if left dirty.

Be careful not to damage the CCD.

- Do not keep the lens directed at extremely bright objects such as the sun or other light sources for long periods. Although the CCD is less susceptible to such burn than a tube would be, caution should be exercised when using this unit. Most importantly, the lens should be capped except while actually shooting.
- Do not direct the eyepiece of the viewfinder at the sun.

Handle the unit carefully.

- Protect the microphone from excessive shocks.
- Do not carry the unit by holding it only by the viewfinder.

Moisture condensation.

- You have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass's outer surface. This same phenomenon occurs on the head drum of a VideoMovie when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the VideoMovie itself.
- If moisture condensation occurs on the head drum, a condensation warning appears in the viewfinder and the unit enters the Stop mode, unable to function. In such a case, wait for a few hours until the indicator disappears.

Maintenance

- When the cabinet is dusty, clean by gently wiping with a soft cloth.
- Avoid the use of strong cleaning agents such as benzine or alcohol as they may damage the cabinet.
- Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

General Battery Precautions

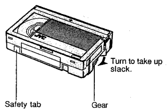
- When the RM-V50U/RM-V20U/C-P6U is not functioning even when correctly operated, the batteries are exhausted. Replace them with fresh batteries.
- Use only following batteries in the unit.
  RM-V50U/RM-V20U .... AAA (R03) size
  C-P6U .... AA (R6) size

Please make note of the following rules for battery use. When misused, batteries can leak or explode.

1. Insert the batteries correctly according to the diagram inside the battery section.
2. Do not use old and new batteries together.
3. Do not use two different kinds of batteries. Although sizes may be the same, voltages may differ.
4. Do not expose batteries to excessive heat as they can leak, or explode. Do not dispose of batteries in a fire.
5. Remove batteries from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

VIDEO CASSETTES

- This VideoMovie employs only the cassettes carrying the VHS-C mark.
- Recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
- An inverted cassette cannot be inserted.
- Do not load and unload the cassette repeatedly without allowing the tape to run at all. This will slacken the tape and thereby damage it.
- Make certain before loading the cassette that the tape is not slack. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up slack.
- The cassette is equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording is impossible. If you wish to record on a cassette whose tab has been removed, use adhesive tape to reseal the slot.
- To avoid excessive exposure to dust and fingerprints, do not open the front tape cover.



Storage of cassettes

- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid storing the cassettes in humid or dusty places.
- Do not drop the cassettes. Do not expose them to violent vibrations or shocks.
- Do not expose the cassettes to strong magnetic fields (near a motor, transformer or magnet).
- Place the cassettes in cassette cases and position them vertically.

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first...

Symptoms	Check points
Power	
No power is supplied.	• Is the battery pack correctly installed? • Is the battery pack charged? • Is the power supply unit correctly connected?
Recording	
Recording is impossible.	• Check to see if the cassette safety tab in place. See ☞ P. 45.
No sound is recorded with an external microphone.	• Is the microphone's switch set to ON?
Recording does not start.	• Have you slidden the control panel cover to "CAMERA" first?
Playback	
Tape is running, but no playback picture appears.	• Is the VIDEO/TV switch of the RF unit set to VIDEO? • Is the TV receiver set to your video channel? • If A/V connection is used, is the TV's VIDEO/TV switch set to VIDEO?
Noise bars appear in the playback picture.	• Use the TRACKING buttons to reduce noise bars.
Playback picture is blurred or interrupted.	• Video heads may be dirty or worn out. For head cleaning or replacement, consult the nearest JVC Service Dealer.
Tape transport	
Tape stops during fast forward or rewind.	• Is the "M" indication visible in the viewfinder? If so, press the COUNTER MEMORY button to cancel the memory function.
Rewinding or fast forwarding is impossible.	• Check to see if the tape has already been fully wound on one reel or the other.
Other	
Vertical white lines appear when shooting a very bright object.	• This may occur when the background contrasts very much with the object. This is normal.
Picture is blurred in the Quick Review or Retake mode.	• Is the SP/EP recording mode select switch properly set?

Note on removing a power supply unit
Do not remove the power supply unit during recording or playback. This will cause damage to the tape.

The VideoMovie is a microcomputer-controlled device. External noise and interference might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC power adapter, etc.); and then reconnect it and proceed as usual from the beginning.

SPECIFICATIONS

Format	: S-VHS/VHS NTSC standard
Power source	: DC 6 V ⎓
Power consumption	: **9.9 W**
Signal system	: NTSC-type
Video recording system	: Luminance: FM recording Color: Converted sub-carrier direct recording Conforms to S-VHS standard
Hi-fi audio recording system	: Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	: 2 Hi-Fi audio channels 1 normal audio channel
Cassette	: S-VHS C / VHS C cassette
Tape speed (SP)	: 33.35 mm/sec (1-5/16 ips)
(EP)	: 11.12 mm/sec (7/16 ips)
Recording time Max. (SP)	: 30 minutes (with ST-C30 cassette)
(EP)	: 90 minutes (with ST-C30 cassette)

VIDEO

Output	: 1 Vp-p, 75 ohms, unbalanced (via AV OUT connector)
S/N ratio	: More than 42 dB (with Rohde & Schwarz noise meter)

AUDIO

Output	: –6 dBs, 1 k-ohm (via AV OUT connector).
Microphone input	: –68 dBs, high impedance, unbalanced

HI-FI AUDIO

Wow and flutter	: Less than 0.005 % WRMS

CAMERA

Pick up	: 1/2"-format CCD
Minimum required illumination	: 3 lux (0.3 fc) (at F/2)
Illumination range	: 3 to 100,000 lux (0.3 to 9,300 fc)
Lens	: F/2, f = 8.7 to 70 mm, 8:1 power zoom lens with auto iris and macro control, filter diameter 43 mm
Viewfinder	: Electronic viewfinder with 0.6" black/white CRT
Selectable high-speed shutter	: Switchable (1/60, 1/100, 1/250, 1/500, 1/1000, 1/4000 second)
White balance adjustment	: Full-auto

GENERAL

Operating temperature	: 0°C to +40°C (32°F to 104°F)
Operating humidity	: 35% to 80%
Storage temperature	: –20°C to +50°C (–4°F to 122°F)
Weight	: 860 g (1.9 lbs) (without Lens cap, Pad, Thumb rest)
Dimensions	: 176(W) x 118(H) x 109(D) mm (6-15/16" x 4-11/16" x 4-5/16") (incl. viewfinder)

AA-V3U SPECIFICATIONS

Power requirement	: U.S. and Canada: AC 120 V∿, 60 Hz Other countries: AC 110 to 240 V∿, 50/60 Hz
Power consumption	: 22 W
Output	: DC 8.5 V ⎓, 1.3 A (Charge), DC 6 V ⎓, 1.8 A (VideoMovie)
Charging system	: Constant current, peak detection, timer controlled
Dimensions	: 145(W) x 42(H) x 69(D) mm (5-3/4" x 1-11/16" x 2-3/4")
Weight	: Approx. 360 g (0.8 lbs)

C-P6U SPECIFICATIONS

Type	: VHS cassette adapter
Dimensions	: 188(W) x 25(H) x 104(D) mm (7-7/16" x 1" x 4-1/8")
Weight	: 240 g (0.53 lbs)
Accessory	: "AA (R6)"-size battery x 1

REMOTE CONTROL UNIT SPECIFICATIONS

Battery life	: Approx. 8 hours (continuous use)
Dimensions	: 55(W) x 86(H) x 5(D) mm (2-3/16" x 3-7/16" x 1/4")
Weight	: 18 g (0.04 lbs)

PROVIDED ACCESSORIES

AC power adapter/battery charger	AA-V3U
Battery pack	BN-V14U
AV output cable	
S-VIDEO cable	VC-V44U
Cassette adapter	C-P6U
S-VHS-C cassette	ST-C20
Battery for clock operation	CR2025
Shoulder strap	VU-V220U
Remote control unit	

For optional accessories, see page 42.

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

SECTION 1
SERVICE CAUTIONS & DISASSEMBLY

1.1 PRECAUTIONS

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. In general, chip parts such as resistors, shorting jumpers (0-ohm resistor), ceramic capacitors, diodes, etc. can not be reused after they were once removed.
4. When installing parts, be careful not to do with other parts as well as not to damage others. (Pay the most careful attention to the upper drum ass'y and tape transport mechanism.)
5. When removing ICs, be careful not to damage circuit patterns.

1.2 REQUIRED TEST EQUIPMENT, FIXTURES/TOOLS AND OTHERS

For proper measurement and adjustment, make sure to use the following test equipment, fixtures/tools besides general tools.

1.2.1 Test equipment, etc.

1. Color TV monitor
2. AC power adapter (AA-V3U, AA-V6U or equivalent)
3. Oscilloscope (dual-trace type, for more than 20 MHz)
4. Frequency counter
5. Audio level meter and audio signal generator
6. Video signal generator
7. Sweep generator
8. Vectorscope

- **Color bar signal**

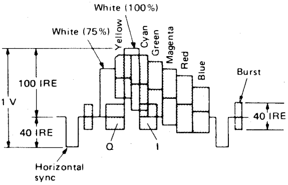

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1 V
40 IRE
40 IRE
Q
I
Horizontal sync

Fig. 1-2-1 Color bar signal waveform

- **Color bar pattern**

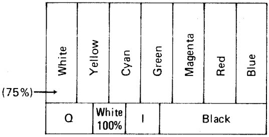

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 1-2-2 Color bar pattern

- **Color sweep signal**

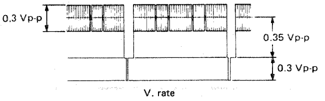

0.3 Vp-p
0.35 Vp-p
0.3 Vp-p
V. rate

Fig. 1-2-3 Color sweep signal

1.2.2 Special test equipment and tools required for adjustment

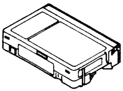
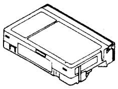
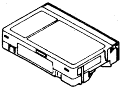
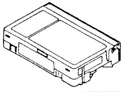
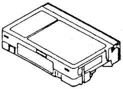
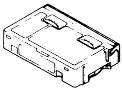
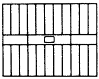
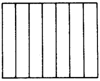
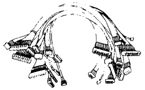
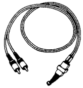
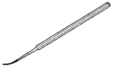
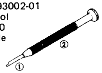
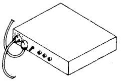
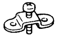
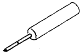
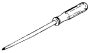
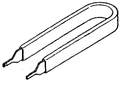
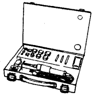
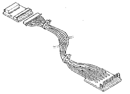
Alignment tape for SP interchangeability (MHP-C or MHC1)	Alignment tape for EP interchangeability (MHP-LC)	Alignment tape for N. SP PB Y/C level (MHV-2C or MH-C1)	Alignment tape for N. SP PB FM audio level (MHAF-1C)
			
Alignment tape for S. SP PB Y/C level (MHV-2HC or MH-C1H)	Cassette torque meter PUJ50431-2	Gray scale pattern (GS-2A) Reflection type, 11 steps, $\gamma = 2.2$	Color bar pattern (CC-2A) Reflection type, 7 colors
			
Patch cord set YTU93054A	Y/C separator cable YTU93006	Chip IC replacing tool PTS40844-2	A/C head positioning tool YTU93002A (incl. ① & ②)
			① YTU93002-01 Bit tool ② PD-3.0 Handle  Orders for ① & ② can be placed separately.
Y/C separator PUJ25579	Upper drum removal tool YTU94031A	Ultramini VR adjusting driver YTU93036-2	0.35 mm adjusting driver YTU94028
			
*Connector Extractor YTU94036A	*SMC Replacement Tools YTU94038B	**TEST POINT Fixtures YTU94047A	
			

Table 1-2-1

Notes: *They are convenient for replacing chip parts.
**Refer to Page 8-10.

1.2.3 Main screws to deal with disassembly/assembly

Table 1-2-2 lists screws by their symbols which correspond to those shown in figures of this section "Service Cautions & Disassembly".

Symbol of Screw	Shape	Parts Number
Ⓐ		YQM30032-5-2
Ⓑ		YQM30052-3
Ⓒ		YQM30052-2
Ⓓ		YU30236-017
Ⓔ		SPSF2005Z
Ⓕ		SPSP2004Z

Symbol of Screw	Shape	Parts Number
Ⓖ		DPSP2008Z
Ⓗ		SPSK2004F
Ⓘ		YU30525-003
Ⓙ		SPSH1725M
Ⓚ		YQ40691
Ⓛ		YU30578-004

Symbol of Screw	Shape	Parts Number
Ⓜ		YU30045-014
Ⓝ		YU30578-003

Table 1-2-2

1.3 SMC Replacement Tools (YTU94038A/B/C)

1.3.1 Outline

The trend in recent years toward ever more compact electronic products has brought about increased use of surface mounted components (SMC). The videomovie series has already been using these parts for several years. Their replacement is often cited as the most difficult aspect of videomovie service and a major cause of reduced service efficiency.
A special soldering tool set has been designed for use in replacing surface mounted components. It includes a range of interchangeable tips that enables application for all SMC used in the videomovie series.
The set features greatly increased work efficiency in comparison with generally marketed tools, together with easy use that does not require advanced training.
Although the set is specifically designed for the videomovie series, it is also useful for replacing general types of SMC. It is therefore highly recommended.

1.3.2 Kit description

• Full system

The system includes a selection of flat IC removal tips for sizes used in the videomovie. It allows increased work efficiency approaching that of the hot air unit. The set is also fully capable of general purpose soldering. Since the cost is considerably less than the hot air system, the kit is recommended for typical service stations.
The following three types are available for use according to the local power line voltage.

1. (YTU94038A)	For 100 V areas
2. (YTU94038B)	For 120 V areas
3. (YTU94038C)	For 220 V areas

Set composition

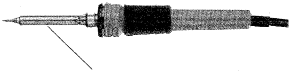
- Soldering iron
- IC tips
- Chisel shaped tip
- Pointed tip
- Flux
- Desoldering wire
- Solder (0.3 mm)
- IC removing tool
- Narrow tipped tweezers

• Part descriptions

1. Soldering iron

YTU94038-001	For 100 V areas
YTU94038-002	For 120 V areas
YTU94038-003	For 220 V areas

2. Holder for general purpose tips
   Tip holder (YTU94038-010)

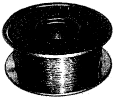


3. Desoldering wire for small parts (0.6 mm) (YTU94038-050)
   Desoldering wire is used for removing residual solder after removing the part. Thin type is used for miniature parts.
   Desoldering wire thickness greatly affects work efficiency. This type tends to absorb the soldering iron heat. With a fine tipped soldering iron, use the thinnest type available.

HAKKOWICK
DESOLDERING WIRE
Size
HAKKO
HAKKO METAL IND. CO.
MADE IN JAPAN

4. Desoldering wire for IC use (2.0 mm) (YTU94038-051)
   (See above)

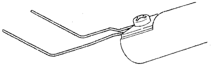
5. Solder for SMC (0.3 mm diameter) (YTU94038-052)
   Use thin rosin core solder of about 0.3 mm. For general chip parts, the 0.6 mm size is suggested. Solder composition should be 60% tin, 40% lead.



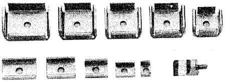
6. Electronic parts flux (YTU94038-053)
   Flux is used for improving soldering efficiency. It is expecially needed for quickly soldering ICs with many leads.
   Rosin flux is ordinarily included in electronic solder. But this may be absent or insufficient in the thinnest sizes. Additional flux is therefore applied to the circuit pattern before soldering in order to improve effectiveness. However, after soldering, use care to clean off remaining flux, since it can be oxidized when the circuit temperature increases.

7. Narrow tipped tweezers (YTU94038-054)
   Tweezers are used when installing miniature parts.

8. IC removing tool (YTU94038-055)



9. IC tip set (YTU94038-200)
   This is a set of only the tips for the above full system. The tips may need replacement after extensive use.

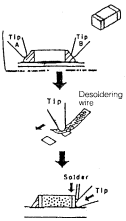
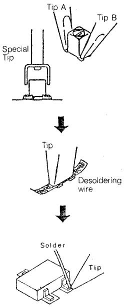
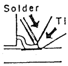


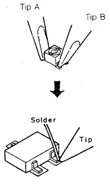
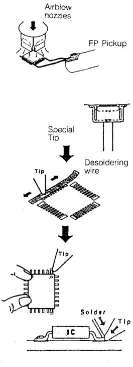
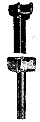
10. Chisel shaped soldering tip (YTU94038-160)

11. Pointed soldering tip (YTU94038-161)

1.4 BASIC KNOWLEDGE OF VIDEOMOVIE SMC* PARTS REPLACEMENT

Note: *For details, refer to "VIDEO SERVICE GUIDE" (VTS81001).*

Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Thick Film Chip Resistors			• **Use 2 soldering irons** 1. Use thin tip soldering irons. 2. Use soldering tip temperature of about 280°C. 3. Simultaneously heat both ends of the part. 4. While heating, grasp the part with the tips of the soldering irons and remove it. 5. Use desoldering wire to completely remove the old solder from the part location of the board. 6. A clean pattern for installing the new part is very important.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3 mm) solder between the tip and part so that it flows into the part contact. 5. Check work quality with a magnifier.	Thin tip type Small flat-blade tip type 	Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it. Do not touch the part body with the soldering iron. The thin (0.3 mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases. Set the position carefully and secure the part. A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
Carbon Film Chip Resitors						
Metal Film Chip Resistors						
Chip Ceramic Capacitors						
Chip Triming Resistors						
Chip Inductors		 Tip A Tip B Special Tip Tip Desoldering wire Solder Tip	• **Special desoldering iron** 1. Select soldering tip according to part size. 2. Bring the tip into contact with the soldered points. 3. When the solder melts, remove the part. 4. Remove the old solder with desoldering wire. • **2 soldering irons** 1. Use small flat-blade tips. 2. Heat both ends of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be mounted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.  5. Check work quality with a magnifier.	Special Soldering tip Small flat-blade tip type Thin tip type 	Use care not to damage plastic components when soldering. Position the part carefully. This will also affect the soldering operation. Use care regarding soldering iron tip and avoid rapidly heating parts. For larger parts, use a slightly higher temperature (about 300°C). Check after installing (cold solder joints, etc.). Use care not to damage the circuit pattern, especially when removing.
Chip Resistor Networks						
Chip Tantalum Capacitors						
Chip Tantalum Electrolytic Capacitors						
Chip Aluminum Electrolytic Capacitors						
Chip Transformers						
Chip Filters						

Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Chip VRs			• **2 soldering irons** 1. Use small flat-blade tips. 2. Heat the leads of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.	Thin tip type Small flat-blade tip type 	Use care not to damage the part when soldering. Check for solder joints, expecially miniature parts with small leads.
Chip Trimmer Capacitors						
Diodes						
Transistors						
IC (SOP) (Small Outline Package)		 Airblow nozzles FP Pickup Special Tip Desoldering wire Tip Tip Solder Tip IC	• **Special desoldering iron** 1. Select the tip according to the size and shape of the IC. 2. "Tin" the tip with a small amount of solder. 3. Set the tip squarely over the IC leads. 4. When the solder melts, carefully twist the iron. 5. Raise and remove the IC. • **Shaped airblower unit** 1. Select the correct nozzle. 2. Select the temperature and airblow (suggested: temp. 7, airblow 4). 3. Engage the IC removing tool. 4. Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.	1. Use desoldering wire to remove the previous solder. 2. Clean the location with alcohol. 3. Apply flux. 4. Position the IC and solder two pins at opposite sides. 5. Use a sharp tipped soldering iron and carefully solder each pin. (After gaining experience, a thicker tip can be used for better work efficiency.) 6. Remove any solder bridges with desoldering wire. 7. Inspect the work with a magnifier.	Special soldering tips  Airblow nozzles 	Do not reuse removed parts. Use care to avoid solder bridges. Remove any that occurs. Remove the old IC carefully so as not to damage the circuit pattern. Because of the many pins, cleanliness of the pattern is extremely important after removing the IC. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier. It is important to inspect the work with a magnifier. ICs (especially TSOP) are easily damaged by heat. Do not touch directly with the soldering iron.
IC (SSOP) (Shrink Small Outline Package)						
IC (VSOP) (Very Small Outline Package)						
IC (QFP) (Quad Flat Package)						
IC (VQFP) (Very Small Quad Flat Package)						
IC (PLCC) (Plastic Leaded Chip Carrier)						
IC (TSOP) (Thin Small Outline Package)						

* SMC: Surface Mounted Component

1.5 DISASSEMBLY OF CAMERA SECTION

Note: *Three kinds of double-arrows in connection tables respectively show kinds of connectors/wires.*

⬌ : Board-to-Board connector
⇔ : Flat wire
↔ : Wire

1.5.1 Operation unit

1. Remove five screws Ⓒ, and lift the operation unit in the direction of the arrow to remove it after disconnecting the connector ①.

Con-nector	No. of pins	Connection
①	12	OPERATION(DECK) CN1 ⬌ 01 VTR CN5

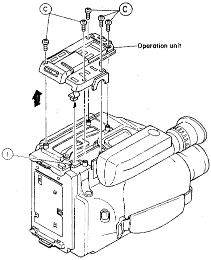


Fig. 1-5-1 Operation unit

1.5.2 Electronic viewfinder

1. Remove two screws Ⓒ and disconnect the connector ① to remove electronic viewfinder.

Con-nector	No.of pins	Connection
①	7	Electronic viewfinder ↔ 01 VTR CN12

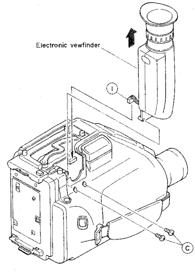


Fig. 1-5-2 Electronic viewfinder

1.5.3 Front panel assembly

1. Remove three screws Ⓒ and a screw Ⓑ.
2. Slide the food assembly in the direction of the arrow ⓐ and remove it in the direction of the arrow ⓑ.
3. Move the front panel assembly in the direction of the arrow ⓒ and disconnect the connectors ①, ②, ③ and ④.

Con-nector	No. of pins	Connection
①	2	19 TALLY CN1 ↔ 17 JUNCTION CN1
②	3	MICROPHONE UNIT ↔ 02 JACK CN3
③	7	WHITE BALANCE SENSOR ↔ 16 CPU CN15
④	3	19 TALLY CN2 ↔ 02 JACK CN4

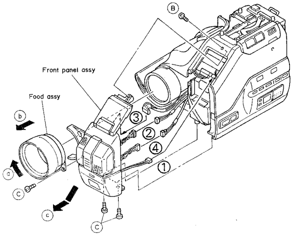


Fig. 1-5-3 Front panel assembly

1.5.4 Microphone unit, White balance sensor

1. Remove four screws Ⓑ and a screw Ⓔ.
2. Remove the white balance sensor in the direction of the arrow ⓐ.
3. Remove the mic unit in the direction of the arrow ⓑ.

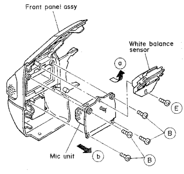


Fig. 1-5-4 Mic unit, W.B. sensor

1.5.5 Cassette cover assembly

1. Remove the cassette holder lock botton from cassette cover assembly.
2. Remove two screws Ⓐ and slide cassette covre assembly in the direciton of the arrows.
3. Disconnect the connector ① and take off the cassette cover assembly.

Connector	No. of pins	Connection
①	7	$\boxed{0}\boxed{7}$ OPERATION(CAMERA) CN1 ⇔ $\boxed{1}\boxed{7}$ JUNCTION CN3

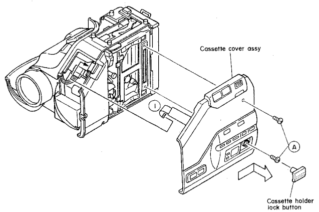

Cassette cover assy
①
Ⓐ
Cassette holder lock button

Fig. 1-5-5 Cassette cover assembly

1.5.6 Upper cover assembly

1. Remove a screw Ⓒ and disconnect the connector ① to remove upper cover assembly.

Connector	No. of pins	Connection
①	9	$\boxed{1}\boxed{7}$ JUNCTION CN2 ↔ CPU PWB WIRE

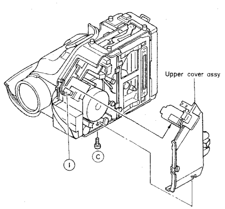

Upper cover assy
①
Ⓒ

Fig. 1-5-6 Upper cover assy

1.5.7 Rear cover assembly

1. Remove six screws Ⓑ and disconnect connectors ① and ② to remove rear cover assembly.

Connector	No. of pins	Connection
①	9	$\boxed{1}\boxed{8}$ DISPLAY CN2 ↔ CPU PWB WIRE
②	2	$\boxed{1}\boxed{8}$ DISPLAY CN1 ↔ CLOCK BATTERY HOLDER

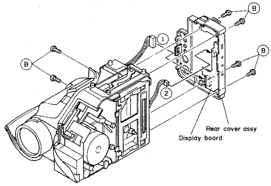

Ⓑ
Ⓑ
Ⓑ
①
②
Rear cover assy
Display board

Fig. 1-5-7 Rear cover assy

1.5.8 Lower case assembly

1. Remove two screws Ⓔ and a screw Ⓒ and disconnect connectors ① and ② to remove lower case assembly

Connector	No.of pins	Connection
①	3	$\boxed{1}\boxed{5}$ AF CN55 ⟷ ZOOM SWITCH
②	3	$\boxed{0}\boxed{1}$ VTR CN17 ⟷ $\boxed{0}\boxed{5}$ TRIGGER CN1

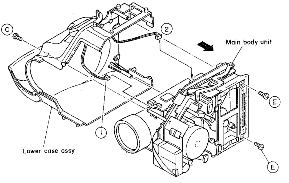

Ⓒ
②
Main body unit
Ⓔ
Ⓔ
①
Lower case assy

Fig. 1-5-8 Lower case assy

1.5.9 Camera section

1. Remove a screw Ⓔ and disconnect the connectors ①, ②, ③, ④ and ⑤ to remove camera section.

Con-nector	No.of pins	Connection
①	16	$\boxed{0}\boxed{1}$ VTR CN14 ⬌ $\boxed{1}\boxed{6}$ CPU CN11
②	10	$\boxed{0}\boxed{1}$ VTR CN15 ⬌ $\boxed{1}\boxed{2}$ VIDEO CN21
③	9	$\boxed{1}\boxed{6}$ CPU CN16 ⟷ CPU PWB WIRE
④	4	$\boxed{1}\boxed{5}$ AF CN59 ⟷ CPU PWB WIRE
⑤	6	$\boxed{0}\boxed{6}$ A/V SUB CN4 ⟷ CPU PWB WIRE

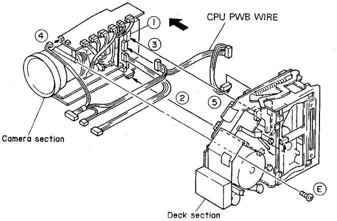

CPU PWB WIRE
①
④
③
②
⑤
Camera section
Ⓔ
Deck section

Fig. 1-5-9 Camera section

1.5.10 Hookup for inspection and adjustment of camera section

After detaching the camera section and deck section from each other, connect the following patch cords as shown in Fig. 1-5-10 for the purpose of inspection and adjustment of the camera section.

Con-nector	No.of pins	PART No.	Connection
①	9	PEMCJ0793A-9	$\boxed{1}\boxed{8}$ DISPLAY CN1 ⟷ CPU PWB WIRE
②	9	PEMCJ0793A-9	$\boxed{1}\boxed{7}$ JUNCTION CN2 ⟷ CPU PWB WIRE
③	12	YUJ41361B-12	OPERATION(DECK) CN1 ⬌ $\boxed{0}\boxed{1}$ VTR CN5
④	7	YUJ40095A-7	$\boxed{1}\boxed{6}$ CPU CN15 ⟷ WHITE BALANCE SENSOR

Notes:
- ***For auto focus adjustment, refer to the connection shown in Fig. 3-4-1 (Section 3.4).***
- ***For auto white adjustment, refer to the connection shown in Fig. 3-3-1 (Section 3.3).***

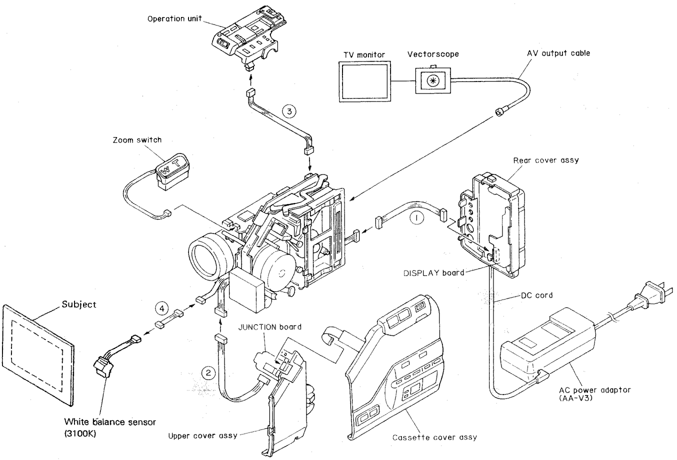

Operation unit
TV monitor
Vectorscope
AV output cable
③
Zoom switch
Rear cover assy
①
DISPLAY board
DC cord
Subject
④
JUNCTION board
②
AC power adaptor
(AA-V3)
White balance sensor
(3100K)
Upper cover assy
Cassette cover assy

Fig. 1-5-10 Setup for inspection and adjustment of camera section

For replacement of the CCD image sensor and the OP block as the next step of the adjustment procedure, remove the following boards.

Note: *Since the structure of all boards of the camera section is the board-to-board connector (1 mm pitch), carefully remove each board so as not to damage it.*

1.5.11 VIDEO board

1. Move the VIDEO board in the direction of the arrow and disconnect the connectors ①, ② and ③.

Con-nector	No.of pins	Connection
①	8	$\boxed{1}\boxed{3}$ VIDEO CN303 ↔ DC-DC converter CN801
②	30	$\boxed{1}\boxed{3}$ VIDEO CN302 ↔ $\boxed{1}\boxed{6}$ CPU CN12
③	30	$\boxed{1}\boxed{3}$ VIDEO CN301 ↔ $\boxed{1}\boxed{2}$ SSG CN202

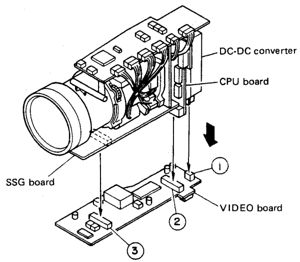

DC-DC converter
CPU board
SSG board
①
VIDEO board
②
③

Fig. 1-5-11 VIDEO board

1.5.12 DC-DC converter

1. Move the DC-DC converter in the direction of the arrow and disconnect the connector ①.

Con-nector	No.of pins	Connection
①	6	DC-DC converter CN802 ↔ $\boxed{1}\boxed{5}$ AF CN52

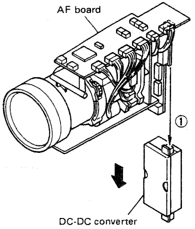

AF board
①
DC-DC converter

Fig. 1-5-12 DC-DC converter

1.5.13 SSG board

1. Remove a screw Ⓔ.
2. Move the CPU board in the direction of the arrow ⓐ, and disconnect the connector ①.
3. Move the SSG board in the direction of the arrow ⓑ, and disconnect the connector ②.

Con-nector	No.of pins	Connection
①	14	$\boxed{1}\boxed{2}$ SSG CN203 ↔ $\boxed{1}\boxed{6}$ CPU CN13
②	16	$\boxed{1}\boxed{2}$ SSG CN203 ↔ $\boxed{1}\boxed{1}$ IMAGER CN101

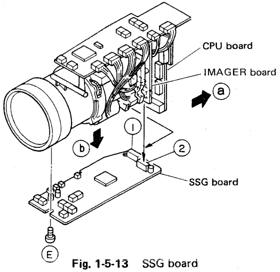

CPU board
IMAGER board
ⓐ
①
ⓑ
②
SSG board
Ⓔ

Fig. 1-5-13 SSG board

1.5.14 AF board

1. Remove two screws Ⓔ.
2. Disconnect the connectors ① to ⑥.

Con-nector	No.of pins	Connection
①	3(W)	$\boxed{1}\boxed{5}$ AF CN57 ↔ Zoom encoder
②	4(Y)	$\boxed{1}\boxed{5}$ AF CN58 ↔ Infinite sensor
③	4(W)	$\boxed{1}\boxed{5}$ AF CN60 ↔ Iris motor
④	4(R)	$\boxed{1}\boxed{5}$ AF CN53 ↔ Hall element
⑤	2(W)	$\boxed{1}\boxed{5}$ AF CN56 ↔ Zoom motor
⑥	4(B)	$\boxed{1}\boxed{5}$ AF CN54 ↔ AF motor

W : White Y : Yellow R : Red B : Black

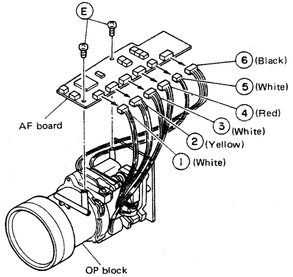

Ⓔ
⑥ (Black)
⑤ (White)
④ (Red)
③ (White)
② (Yellow)
① (White)
AF board
OP block

Fig. 1-5-14 AF board

1.5.15 IMAGER board

1. Remove two screws Ⓕ.
2. Move the IMAGER board in the direction of the arrow. At that time, pay careful attention to pins of the CCD image sensor so as not to damage them.

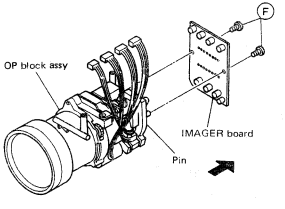


Fig. 1-5-15 IMAGER board

1.5.16 Replacement of CCD image sensor

Note:

- *Pay the most careful attention to the transparent glass and optical filters of the CCD image sensor so as not to soil and damage them. If something is soiled with fingerprints, etc., gently clean it with silicone-processed paper/cloth or chamois.*
- *When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just before assembling the CCD image sensor to the OP block.*

- **Removal of CCD image sensor**

1. Remove two screws Ⓖ securing the imager holder.
2. Remove two screws Ⓗ securing the filter holder, and disassemble the optical filter, spacer rubber, and CCD image sensor from the holder.

- **Installation of new CCD image sensor**

1. Remove the protection seal from a new CCD image sensor and set it on the imager holder. Next, put the spacer rubber, optical filter, filter holder on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item referring to the following table (see Fig. 1-5-16).

Parts Name	Orientation
Imager holder	Parts No. is upside-down viewed as indicated by the arrow ⓐ.
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ.
Spacer rubber	IC side is horizontal.
Optical filter	Marking orientates toward downside of OP block.

2. Next, fix the filter holder to the imager holder with the two screws Ⓗ.
3. Fix the imager holder to the OP block with the two screws Ⓖ. At that time, be careful of the orientation.
4. After completion of the CCD image sensor replacement and reassembly of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.
5. After all of the above steps, perform the Auto Focus Adjustment described in Section 3.4.

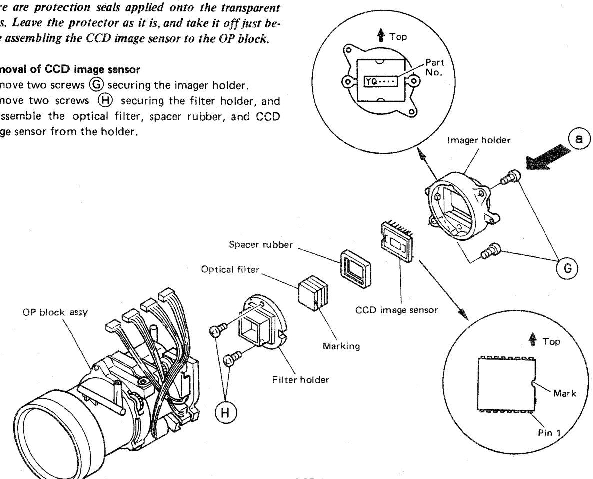


Fig. 1-5-16 CCD image sensor

1.5.17 OP (optical) block assembly

After removal of the imager holder (Section 1.5.15), replace the OP block assembly.

- **Zoom motor assembly**

1. Remove screw Ⓘ and screw Ⓝ.

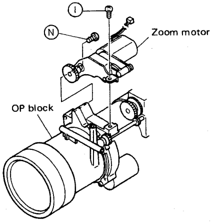


Fig. 1-5-17 Zoom motor assembly

Note: *After the OP block assembly and the zoom motor assembly are replaced, perform the Auto Focus Adjustment of Section 3.4.*

1.5.18 AF motor assy

1. Remove two screws Ⓛ.

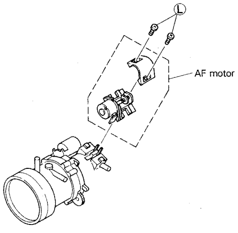


Fig. 1-5-18 AF motor assy

1.5.19 Electronic viewfinder

1. Match the markings and turn the lens assembly in the direction of the arrow ⓐ, then move it in the direction of the arrow ⓑ to remove lens assy.
2. Remove two screws Ⓜ, two screws Ⓓ and protector ring.

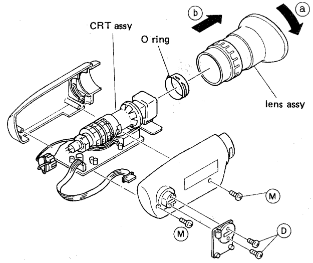


Fig. 1-5-19 Electronic viewfinder

3. When replacing the CRT, securely and carefully connect withe the CRT connector being careful not to bend or damage pins of the CRT.

1.6 DISASSEMBLY OF DECK SECTION

Note: *Three kinds of double-arrows in connection tables respectively indicate kinds of connectors/wires.*

⬌ : Board-to-Board connector
⇔ : Flat wire
↔ : Wire

1.6.1 Hookup for inspection and adjustment of deck section

After detaching the camera section and deck section from each other according to Section 1.5.8, connect the following patch cords as shown in Fig. 1-6-1 for the purpose of inspection and adjustment of the deck section.

Con-nector	No. of pins	Parts Number	Connection	
①	9	PEMCJ0793A-9	$\boxed{1}\boxed{8}$ DIPSLAY CN1	↔ CPU PWB WIRE
②	12	YUJ41361B-12	OPERATION (DECK) CN1	⬌ $\boxed{0}\boxed{1}$ VTR CN5
③	4↔12	YUJ41358B-12T	Y/C separator cable	⬌ $\boxed{0}\boxed{1}$ VTR CN15
④	3	YUJ40095A-3	$\boxed{0}\boxed{1}$ VTR CN17	↔ $\boxed{0}\boxed{5}$ TRIGGER CN1

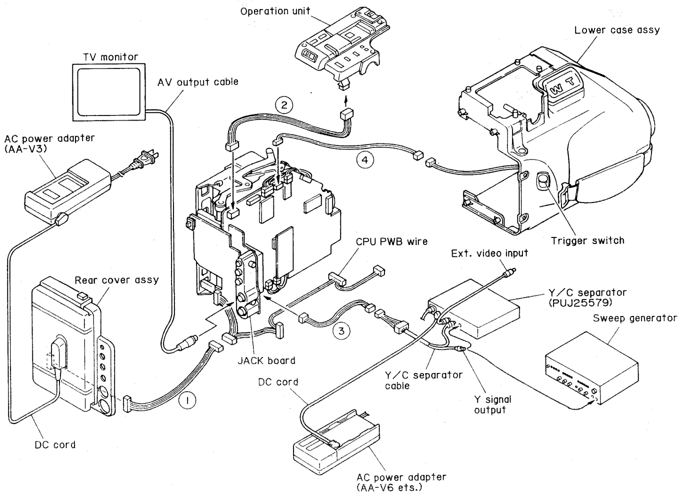

Operation unit
Lower case assy
TV monitor
AV output cable
②
AC power adapter
(AA-V3)
④
CPU PWB wire
Trigger switch
Ext. video input
Rear cover assy
Y/C separator
(PUJ25579)
Sweep generator
③
JACK board
DC cord
Y/C separator
cable
①
Y signal
output
DC cord
AC power adapter
(AA-V6 ets.)

Fig. 1-6-1 Hookup for inspection and adjustment of deck section

For inspection and adjustment of phase of the mechanism, remove P.C. boards from the deck section.

1.6.2 A/V SUB board

1. Move the A/V SUB board in the direction of the arrow, and disconnect the connectors ①, ② and ③.

Con-nector	No.of pins	Connection
①	26	01 VTR CN19 ⬌ 06 A/V SUB CN3
②	26	02 JACK CN2 ⬌ 06 A/V SUB CN2
③	30	01 VTR CN1 ⬌ 06 A/V SUB CN1

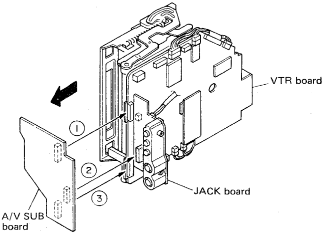


Fig. 1-6-2 A/V SUB board

1.6.3 JACK board

1. Move the JACK board in the direction of the arrow, and disconnect the connector ①.

Con-nector	No.of pins	Connection
①	6	01 VTR CN2 ⬌ 02 JACK CN1

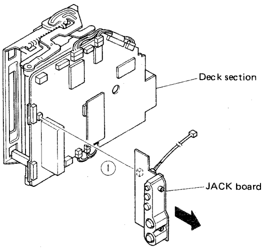


Fig. 1-6-3 JACK board

1.6.4 VTR board

1. Remove a screw Ⓙ and a screw Ⓚ.
2. Disconnect connectors ①, ②, ③, ④, ⑤ and ⑥.
   Then, the VTR board can be opened.
3. Disconnect connectors ⑦, ⑧, ⑨ and ⑩.
   Then, the VTR board can completely be detached.

Con-nector	No.of pins	Connection
①	2	01 VTR CN18 ↔ 08 End sensor BKT
②	2	01 VTR CN9 ↔ Mode control motor
③	15	01 VTR CN8 ⇔ Drum motor
④	8	01 VTR CN4 ⇔ 04 SENSOR
⑤	6	01 FLY CN1 ⬌ Flying erase head
⑥	18	01 VTR CN10 ⬌ 03 PRE REC CN1
⑦	4	01 VTR CN6 ↔ Control head
⑧	15	01 VTR CN7 ⇔ Capstan motor
⑨	2	01 VTR CN16 ↔ Dew sensor
⑩	5	01 VTR CN3 ↔ Audio head
⑪	18	01 VTR CN21 ⬌ 03 PRE REC CN2

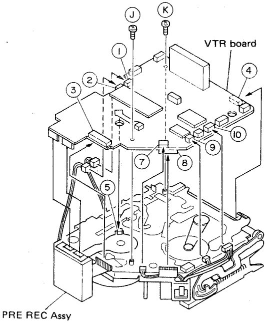


Fig. 1-6-4 VTR board

1.6.5 PRE REC ASSY

1. Draw the CONNECTOR board out in the direction of the arrow (see Fig. 1-6-5).
   At that time, pay attention to 16 pins of the drum terminal so as not to bend and damage them.
2. Remove a screw Ⓙ and remove the PRE REC Assy from the deck section.

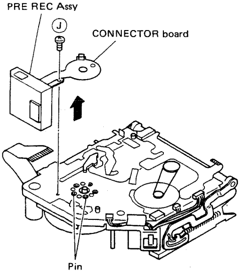


Fig. 1-6-5 PRE REC Assy

1.6.6 SENSOR board

1. Remove four screws Ⓙ and disconnect the connrctor ①.

Con-nector	No.of pins	Connection
①	3	$\boxed{0}\boxed{4}$ SENSOR CN1 ⬌ Camera switch

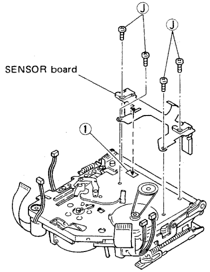


Fig. 1-6-6 SENSOR board

1.6.7 Replacement of cassette housing

1. After detaching the deck section from the camera section in the procedure of Section 1.5.8, move the lock plate in the direction of the arrow ⓐ to set the cassette housing to the Eject mode.

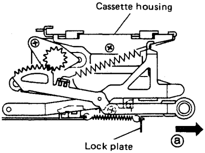


Fig. 1-6-7A Cassette housing - 1

2. Remove two screws Ⓙ.
3. Open both arms of the cassette housing in the directions of the arrow ⓑ to make them come out of the guide rail of the main deck.
4. Remove the cassette housing in the direction of the arrow ⓒ.

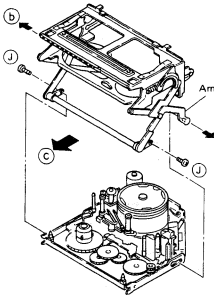


Fig. 1-6-7B Cassette housing - 2

1.6.8 To take out cassette tape

When the deck enters the Emergency mode with a cassette tape loaded and it cannot be ejected by pressing the EJECT button, take the cassette tape out of the cassette housing according to the following procedure.

1. Disconnect the deck from the power source and remove the operation unit, front panel assembly, cassette cover assembly and upper cover assembly according to the descriptions of Sections 1.5.1, 1.5.3, 1.5.4 and 1.5.5 of "Disassembly of Camera Section".
2. Remove wires of the mode control motor as shown in the magnified view Ⓐ (Fig. 1-6-7) and connect jumping wires to the terminals.
   Note: *This is for protection of the Mechacon CPU.* .
3. Holding the cassette housing by hand, connect the jumping wires to a UM3 battery and set the mechanism for Unloading as it is in the Eject mode. In this condition, turn the take-up gear (see the magnified view Ⓑ) in the direction of the arrow ⓐ (toward the drum) to wind the tape. Checking up whether the tape is damaged or not, stop holding of the cassette housing by hand.
   Note: *If the mechanism comes into the unloading mode as the cassette tape is not held by hand, it results in tape damage.*

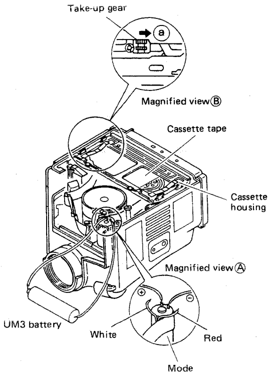

Take-up gear
ⓐ
Magnified viewⒷ
Cassette tape
Cassette housing
Magnified viewⒶ
UM3 battery
White
Red
Mode control motor

Fig. 1-6-8 To take out cassette tape

1.6.9 Replacement of upper drum

Note: ***Be very careful not to touch any head of a new upper drum as well as not to damage the drum.***

- **Removal**

1. Carefully unsolder at 18 points shown in Fig. 1-6-9 on the UPPER DRUM board.
   Note: ***If solder is not completely removed, it may cause damage of the head pins when the upper drum is removed.***

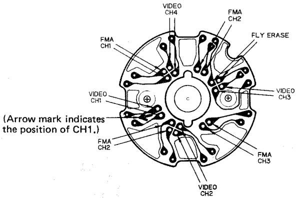

VIDEO CH4
FMA CH2
FLY ERASE
FMA CH1
VIDEO CH1
VIDEO CH3
(Arrow mark indicates the position of CH1.)
FMA CH2
FMA CH3
VIDEO CH2

Fig. 1-6-9 Upper drum replacement (1)

2. Remove two screws and draw out the upper drum in the direction of the arrows.

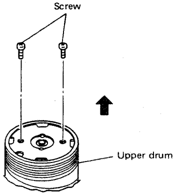

Screw
Upper drum

Fig. 1-6-10 Upper drum replacement (2)

3. When it is hard to remove the upper drum, set the upper drum removal tool (YTU94031A) with the screws which are once removed in the step 2, and tighten the center screw to remove it easily.

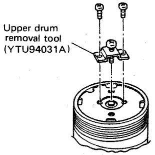

Upper drum removal tool (YTU94031A)

Fig. 1-6-11 Upper drum replacement (3)

- **Installation**

1. Before installing a new upper drum, insert a soldering iron (50 W) into the hole of the upper drum and heat it for about 3 to 5 minutes to expand it.

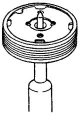


Fig. 1-6-12 Upper drum replacement (4)

2. Set the upper drum so that its hole A and the hole B of the lower drum are positioned oppositely (180°) in a line, and temporarily tighten the two screws.

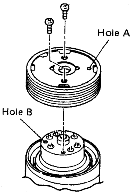

Hole A
Hole B

Fig. 1-6-13 Upper drum replacement (5)

3. Tighten the screws lightly first, then, alternately tighten them gradually as the upper drum is cooled.
4. After replacement finishes, make sure to check up and adjust the following items.
   - Servo and interchangeability
   - PRE-AMP circuit
   - Luminance (Y) signal circuit
   - Color signal circuit

1.6.10 Checkup and adjustment of mechanism phase

Note: *Pay careful attention to the installing order and phase of mechanism parts of the loading system.*

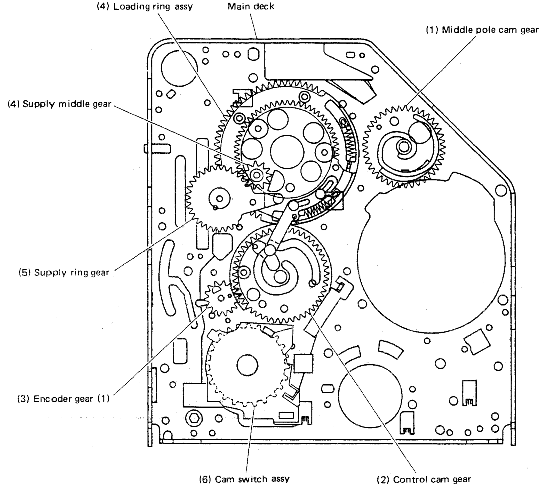

(4) Loading ring assy
Main deck
(1) Middle pole cam gear
(4) Supply middle gear
(5) Supply ring gear
(3) Encoder gear (1)
(6) Cam switch assy
(2) Control cam gear

Fig. 1-6-14 Phase adjustment of loading system

1. Middle pole cam geer
   Position the middle pole cam gear so that its adjusting hole and the hole of the main deck coincide with each other.

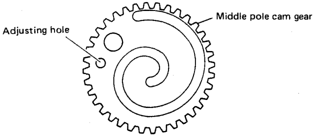

Middle pole cam gear
Adjusting hole

Fig. 1-6-15 Middle pole cam gear

2. Control cam gear
   Position the control cam gear so that its adjusting hole and the hole of the main deck coincide with each other. At that time, confirm that the holes of the link (located on the back of the main deck) and the hole of the main deck coincide with each other.

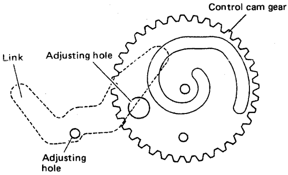

Control cam gear
Link
Adjusting hole
Adjusting hole

Fig. 1-6-16 Control cam gear

3. Encoder gear (1)
   Engage the encoder gear (1) with the control cam gear so that the marking of the encoder cam gear (1) is positioned in the line between the axes of the encoder gear (1) and the control cam gear.

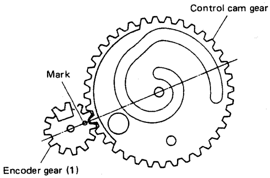

Control cam gear
Mark
Encoder gear (1)

Fig. 1-6-17 Encoder gear (1)

4. Loading ring assembly, supply middle gear
   Engage the supply middle gear with the loading ring assembly so that two teeth of the supply middle gear and the internal first two teeth of the loading ring assy are gearing with each other.

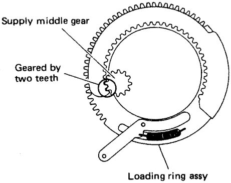

Supply middle gear
Geared by two teeth
Loading ring assy

Fig. 1-6-18 Loading ring assy, supply middle gear

5. Supply ring gear
   Engage the supply ring gear so that its hole coincides with that of the loading ring assy.

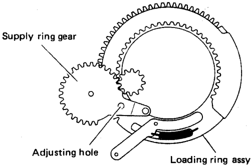

Supply ring gear
Adjusting hole
Loading ring assy

Fig. 1-6-19 Supply ring gear

6. Cam switch assembly
   Set the cam switch assembly so that the notch of its gear teeth coincides with both the rectangle hole Ⓐ and the hole of the main deck.

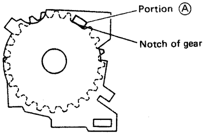

Portion Ⓐ
Notch of gear

Fig. 1-6-20 Cam switch assembly

After completion of the above steps 1 through 6, make sure to confirm that respective phases are correct.

For disassembling, proceed through the above steps in the reverse order.

1.7 INSPECTION AND MAINTENANCE

Since this model is equipped with rotary parts and other parts which may wear as time passes, it is important to clean the tape transport system and rotary parts as well as oiling and greasing rotary parts.

Besides such maintenance, periodic replacement of worn and consumable parts is required.

*Note: **Encircled numeral(s) corresponds to the item number shown in Table 1-7-1.***

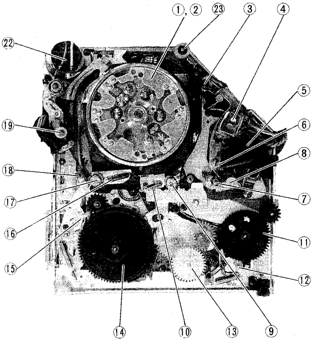


Fig. 1-7-1 Location of main mechanism parts (Top view)

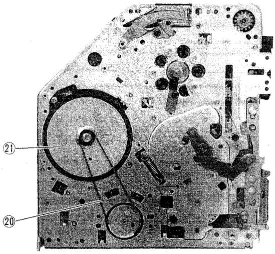


Fig. 1-7-2 Location of main mechanism parts (Bottom view)

1.7.1 Standard maintenance/inspection schedule of main components

Table 1-7-1 indicates the standard servicing period by component and kind of servicing. In practice, however, the indicated periods will widely vary according to environmental and using conditions. Nunfulfilment of the maintenance work not only shortens the standard period sharply but also influences other components badly.
Also be aware that rubber parts may possibly deform and age as time passes even when the set is not used.

System	Symbol No.	Parts Name	Assy	Periodic servicing schedule (operation hours)								
				250	500	750	1000	1250	1500	1750	2000	3000
Tape transport system	19	Impedance roller		★	★	★	★	★	★	★	★	★
	16	Supply slant pole	a									
	17	Supply guide roller	a									
	18	Tension pole	a									
	7	Middle pole	a									
	6	Take-up guide pole A	a									
	3	Take-up guide pole B	a									
	9	Take-up guide roller	a									
	10	Take-up slant pole	a									
	8	Capstan	a									
	2	Lower drum	a									
	1	Upper drum	a	★	★	☆	●	★	★	☆	●	●
	4	A/C head	a	★	★	★	★	★	★	★	★	●
	5	Pinch roller	a	★	★	★	★	★	★	★	★	●
	23	Head cleaner	a	○	○	○	●	○	○	○	●	●
Drive system	21	Capstan motor	a								●	
	20	Belt					○				●	○
	22	Mode control motor										●
	11	Take-up clutch	a	△	△	△	▲	△	△	△	▲	▲
	14	Supply reel disk	a	△	△	△	▲	△	△	△	▲	▲
	13	Center pulley	a				○				○	○
	12	Search brake lever		★	☆	★	☆	★	☆	★	☆	☆
Other	15	Tension band	a				○				○	○

★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
a : Will be provided as assembly parts for replacement
▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection or Replacement if required

Table 1-7-1 Maintenance schedule

1.7.2 Remarks

1. Cleaning

1) For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe with alcohol soaks through. Do not move the cloth but turn the upper drum counterclockwise.
   Note: *Make sure not to move the cloth in the vertical direction to the video head, since it may cause damage of the video heads.*
2) For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.
3) After cleaning, confirm that the cleaned parts are completely dry before loading the deck with cassette tape.

2. Applying oil and grease

1) Periodical oiling and greasing are not required but should be done to new parts when replacing. If oil and grease on the other parts of the other party are old and dirty, wipe them clean and apply new oil or grease.
2) For parts and points to apply oil and grease, refer to the exploded view of the mechanism assembly (M3).
   Table 1-7-2 specifies oil and grease to be used.
3) When oiling, clean the objective parts with alcohol first and apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Part No.	Symbol in drawing
Grease	Moriton Grease No.1	MOS2-C	AA
Oil	Cosmo Hydro HV100	YTU94027	BB

Table 1-7-2 Specific oil and grease to be used

3. Checkup

After replacement of the supply reel disk and tension band, make sure to inspect and adjust back tension according to the adjustment procedure of the deck section.

4. Replacement

Replacement parts which are supplied as assembly parts are indicated by "a" in the "Assy" column of Table 1-7-1.
For respective parts numbers, refer to the parts list of the mechanism assembly.

SECTION 2
DECK SECTION ADJUSTMENT

2.1 PREPARATION

2.1.1 Precaution

In most cases, if the deck section is in need of electrical adjustment, it results from replacement of worn mechanical parts or video heads.
In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments must be done first, and then commence necessary repair, replacement and adjustment, etc.

2.1.2 Connection for adjustment

Disassemble the deck section from the other units, and connect it with test equipment as shown in Fig. 2-1-1.

1. When adjusting the deck section in the connection shown in Fig. 2-1-1, the switching point will appear on the screen at self-recording and playback. This is reson why there is on frame pulse input from the camera section and the servo phase is not locked, and not due to any trouble.
2. In case of wiring to chip test points for measurement, use IC clips, etc. to avoid any stress.
3. Since connectors are fragile, carefully handle them when disconnecting and connecting.
4. To operate the deck section with the VTR board removed from the mechanism chassis, set the push switch (SW1) to ON.

Connector	No.of pins	Parts Number	Connection	
①	9	PEMCJ0793A-9	$\boxed{1}\boxed{8}$ DISPLAY CN1	↔ CPU PWB WIRE
②	12	YUJ41361B-12	OPERATION (DECK) CN1	⬌ $\boxed{0}\boxed{1}$ VTR CN5
③	4 ↔ 12	YUJ41361B-12T	Y/C separator cable	⬌ $\boxed{0}\boxed{1}$ VTR CN15
④	3	YUJ40095A-3	$\boxed{0}\boxed{1}$ VTR CN17	↔ $\boxed{0}\boxed{5}$ TRIGGER CN1

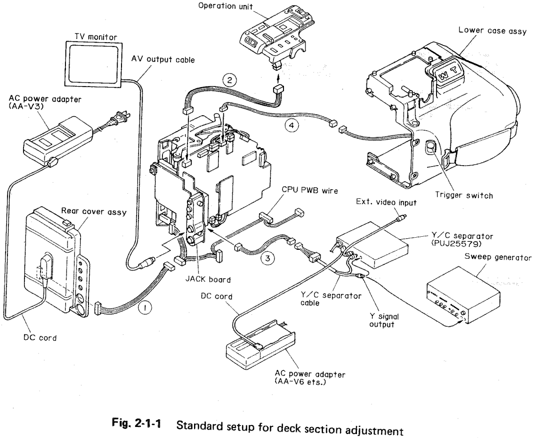
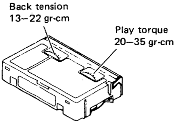
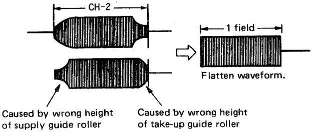
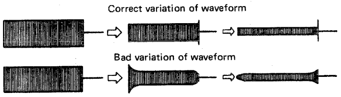

Operation unit
TV monitor
AV output cable
Lower case assy
AC power adapter (AA-V3)
②
④
CPU PWB wire
Trigger switch
Ext. video input
Rear cover assy
Y/C separator (PUJ25579)
Sweep generator
③
JACK board
DC cord
①
Y/C separator cable
Y signal output
DC cord
AC power adapter (AA-V6 ets.)

Fig. 2-1-1 Standard setup for deck section adjustment

2.2 SERVO CIRCUIT AND INTERCHANGEABILITY

Note: • *This adjustment must be performed after the upper drum assembly or the lower drum assembly is replaced.*
• *Unless otherwise specified, measurement points and adjustment parts are located on 01 VTR board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Back tension	• REC	• Cassette torque meter  Back tension 13–22 gr-cm Play torque 20–35 gr-cm **Fig. 2-2-1** Cassette torque meter	• Cassette torque meter		1) Set a cassette torque meter onto the deck and measure the back tension in the standard REC mode to confirm that the back tension is 13–22 gr-cm. 2) If not, replace the tension band. When the value widely fluctuates in the measurement, replace the supply reel disk. 3) With the cassette torque meter, confirm that the play torque is 20–35 gr-cm. If necessary, replace the take-up clutch assy.
2	Tape pattern	• PB	• Alignment tape SP stairstep (MHP-C) • Tracking: Manual  CH-2 1 field Flatten waveform. Caused by wrong height of supply guide roller Caused by wrong height of take-up guide roller **Fig. 2-2-2** FM waveform  Correct variation of waveform Bad variation of waveform **Fig. 2-2-3** FM waveform	• CN11 pin1 (V FM) • CN11 pin 6 (V SW-A) (Ext.trigger)	• Supply/ Take-up guide roller	1) Observe signal at CN11 pin 1 with external trigger from CN11 pin 6. 2) Play back the SP stairstep signal of the alignment tape, and maximize the FM waveform by the tracking button. 3) If the observed FM waveform is not flat, adjust the height of the supply or take-up guide roller with an ordinary screwdriver (–). **Note:** ***Slowly turn the guide roller to prevent the tape and drum from damage.*** 4) By operating the tracking button (both in + and – directions) in the manual tracking mode, vary the output level of the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape. 5) When the FM waveform breaks in the level varying process, subtly adjust the height of guide rollers at every breaking point so that the waveform varies as flat as possible. Repeat the above steps 4) and 5) several times to confirm that the waveform is flat as a whole.

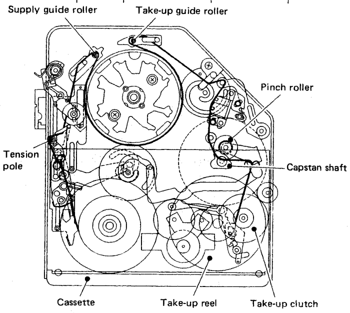
<table>
<tr><th>No.</th><th>Item</th><th>Mode</th><th>Signal
& Setting</th><th>Measurement Point</th><th>Adjustment Parts</th><th>Adjustment Procedure</th></tr>
<tr><td></td><td></td><td>• REC
↓
PB</td><td>• Alignment tape EP stairstep (MHP-LC)
• SP/EP</td><td></td><td></td><td rowspan="2">6) Play the EP stairstep signal of the alignment tape and adjust the Tracking CTL to maximize the FM waveform.
7) Confirm, FM waveform variation is always flat. If necessary, repeat step 3).
8) Record both in SP and EP modes and playback the signal to confirm that the FM waveform is flat in both modes.
Note:<i>If there is FM dropout at the supply side (tape inlet of the drum) in EP/SP REC-PB, check the back tension first and adjust the parallelism with the alignment tape for the best setting, and then turn the supply guide pole counterclockwise at an angle of 30° approx.</i>
9) Through the above adjustments, make sure of no wrinkling/damage in the tape around the impedance roller and take-up guide pole in Loading/Unloading, Search Rewind, and at mode shift from Search Rewind to Play.
If tape wrinkling or damage occurs around the take-up guide pole, adjust the contact (angle) of the audio/control head to transport the tape correctly along the lower flange of the guide pole.</td></tr>
<tr><td colspan="6">

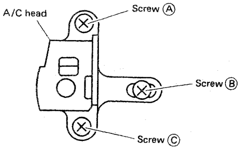
Fig. 2-2-4 Tape transport system</td></tr>
<tr><td>3</td><td>A/CTL head height & azimuth</td><td>• PB</td><td>• Alignment tape SP stairstep (Audio 7 kHz) (MHP-C or MH-C1)</td><td>• TP32 (AUDIO OUT)</td><td>• A/CTL head</td><td rowspan="2">1) Play back the SP 7 kHz segment of the alignment tape and observe waveform at TP32.
Note:<i>When the output level is approx. −6 dBs (1.1 Vp-p, 0.39 Vrms) and the level fluctuation is less than −2 dB, adjustment is not required.</i>
2) If necessary, turn the screw Ⓐ (reference), Ⓑ (bent forward) and Ⓒ (azimuth) gradually (at an angle of 45° approx.) in the same direction to obtain the maximum output level.
3) As final fine adjustment, adjust the screw Ⓑ for minimum level fluctuation and the screw Ⓒ for maximum output level.</td></tr>
<tr><td colspan="6">

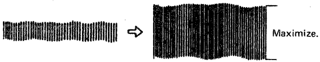
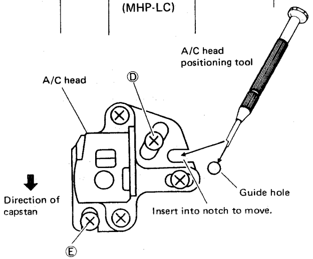
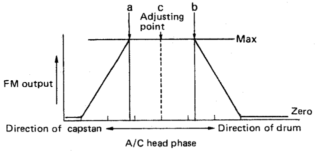
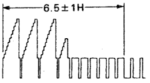
Fig. 2-2-5 A/C head


Fig. 2-2-6 Audio signal</td></tr>
</table>

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	Phase of control head (X value)	• PB	• Alignment tape SP stairstep (MHP-C or MH-C1) • Tracking: Manual • Alignment tape EP srairstep (MHP-LC)  A/C head A/C head positioning tool Ⓓ Guide hole Direction of capstan Insert into notch to move. Ⓔ **Fig. 2-2-7** Phase of control head  **Fig. 2-2-8** Phase adjustment point of control head	• CN11 pin 1 (V FM) • CN11 pin 6 (V SW-A) (Ext.trigger)	• Control head	1) Play back the SP stairstep signal of the alignment tape and observe waveform at CN11 pin 1 with external trigger from CN11 pin 6. 2) Operate the tracking button in the manual tracking mode and confirm that the FM output level is maximum at the center position of the tracking button as shown in Fig. 2-2-8. 3) If necessary, slightly loosen the setscrews Ⓓ and Ⓔ and insert the tip of the A/C head positioning tool into the notch and guide hole to move the A/C head fully in the direction of the capstan to the extent. 4) Gradually move the A/C head toward the drum to find the position where the FM output level is maximum for the first time ('a—b' in Fig. 2-2-8). 5) Fine adjust the phase of the A/C head and tighten the setscrews Ⓓ and Ⓔ at the point c which is the midpoint between a and b. 6) Play back the EP stairstep signal of the alignment tape and confirm that the FM waveform is maximized at the center detent position of the tracking button. 7) Confirm that the above steps 2) and 6) are satisfactory at the same time. If not, repeat the steps 3) through 6).
5	PB switching point	• PB	• Alignment tape SP stairstep (MHP-C or MH-C1) • Tracking: Manual  **Fig. 2-2-9** PB switching point	• TP1 (VIDEO OUT) $\boxed{0}\boxed{2}$ JACK • TP109 (DRUM FF) (Ext.trigger)	• R103 (PB SW POINT)	1) Play back the SP stairstep signal of the alignment tape. 2) Observe waveform at TP1 with external trigger (—) from TP109. 3) Adjust R103 so that the trigger point is 6.5H before the fall point of V. sync. signal.

2.3 PRE-AMP CIRCUIT

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
	Note: • *This adjustment should be performed only when self-recording picture has flicker and B/W reversal after replacing the upper drum or Pre-amp board. It is necessary to correct each head characteristic obtain the optimum picture quality.* • *Use the Pre-amp's chassis for all GND.*					
1	Video head resonance/ Fo	• PB	• Video sweep	• CN11 pin1 (V FM) 01 VTR	• Refer to Table 2-3-1	1) Short circuit pin 12 and pin 13 of CN5 to GND on the VTR board to select Emergency Off mode. 2) Supply a sweep signal with 1 MHz and 7.5 MHz makers from Sweep Generator to "A" on the PRE-REC board with a 1.2 kOhm register. **Note:** *"A"; refer to the table for each head adjustment.* 3) Set for play mode without tape. 4) Connect the oscilloscope to pin 1 of CN11 on the VTR board with external trigger from "B". 5) Adjust "C" to set the resonance point to 7.5 MHz. 6) Adjust "D", 7.5 MHz (b) level is double 1 MHz level (a) as shown in Fig. 2-3-1. 7) Repeat step 2) and 6) for each channels according to table. 8) If necessary, adjust Q ratio to that of the least efficient channel to equal each channel characteristic.

Channel	"A"	"B"	"C"	"D"
	Signal input point	Trigger point	fo	Q
CH1	Pin 1 of CN1	Pin 16 of F02	VC01	VR01
CH2	Pin 5 of CN1	Pin 6 of F02	VC02	VR02
CH3	Pin 3 of CN1	Pin 7 of F02	VC03	VR03
CH4	Pin 7 of CN1	Pin 15 of F02	VC04	VR04

Table 2-3-1

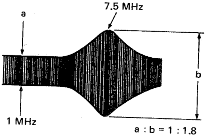


Fig. 2-3-1 Video head resonance/Fo

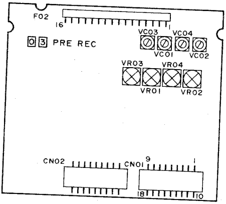


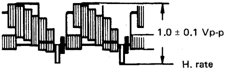
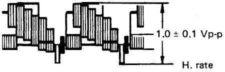
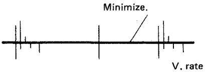
Fig. 2-3-2 PRE REC board location

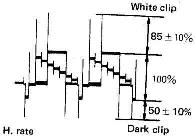
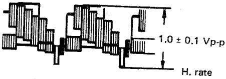
2.4 LUMINANCE (Y) SIGNAL CIRCUIT

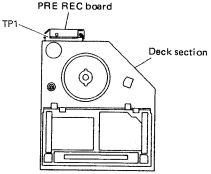
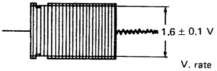
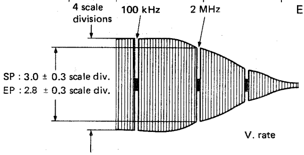
2.4.1 N (normal) VHS Y signal circuit

Note: • *Before proceeding to do each adjustment, check the adjustment value.*

• *Unless otherwise specified, playback and recording modes are normal VHS mode, and all measurement points and adjustment parts are located on* $\boxed{0}\boxed{1}$ *VTR board.*

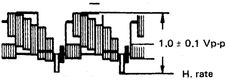
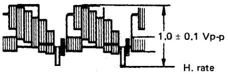
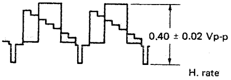
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	EE Y level	• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• EE	• Color bar	• TP1 (VIDEO OUT) $\boxed{0}\boxed{2}$ JACK	• R801 (EE Y LEVEL)	1) Confirm Y level of 1.0 Vp-p at TP1. 2) If necessary, replace R801 with the variable resistor NVP1301-222N and adjust it for 1.0 Vp-p.
		 **Fig. 2-4-1** EE Y level				
2	PB Y level	• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)	• TP1 (VIDEO OUT) $\boxed{0}\boxed{2}$ JACK	• R814 (N PB Y LEVEL)	1) Play the color bar signal of the alignment tape to confirm that Y level is 1.0 Vp-p at TP1 in playback. 2) If necessary, replace R814 with the variable resistor NVP1301-223N and adjust it so that the Y level is 1.0 Vp-p.
		 **Fig. 2-4-2** N PB Y level				
3	Y NR input level	• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)	• TP506 (YNR OUT)	• R816 (Y NR INPUT LEVEL)	1) Play the color bar signal of the alignment tape. 2) Confirm that average level of the waveform is minimum. 3) If necessary, replace R816 with the variable resistor NVP1301-152N and adjust it for minimum output.
		 **Fig. 2-4-3** Y NR input level				

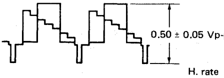
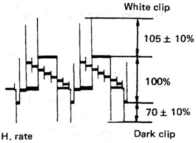
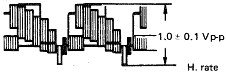
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	White & Dark clip	• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• EE	• Color bar • EP	• TP505 (EMPHASIS OUT)	• R804 (N WHITE CLIP) • R807 (N DARK CLIP)	1) Confirm that white clip is 85% at TP505. 2) If necessary, replace R804 with the variable resistor NVP1301-103N and adjust it for 85% white clip. 3) Confirm that dark clip is 50% at TP505. 4) If necessary, replace R807 with the variable resistor NVP1301-103N and adjust it for 50% dark clip.
			 White clip 85 ± 10% 100% 50 ± 10% H. rate Dark clip **Fig. 2-4-4** White & dark clip			
5	Carrier deviation	• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*				**Note:** *This adjustment should be performed only when EE and playback of the pre-recorded tape are normal, while the sync at self-recording is distorted (poor carrier set) or S/N is extremely poor (poor deviation).*
		• EE	• No input signal	• TP504 (REC FM OUT)	• R811 (N CARRIER)	1) Connect a frequency counter to TP504, and confirm that frequency is 3.4 MHz ± 50 kHz without input signal. 2) If necessary, replace R811 with the variable resistor NVP1301-473N and adjust it for the specified value.
		• REC ↓ PB	• Color bar • SP	• TP1 (VIDEO OUT) $\boxed{0}\boxed{2}$ JACK	• R809 (N DEVIATION)	3) Record the color bar signal and play it to confirm that Y level is 1.0 Vp-p at TP1 in playback. 4) If necessary, replace R809 with the variable resistor NVP1301-103N and adjust it in recording, and then confirm the result in playback.
			 **Fig. 2-4-5** Carrier/deviation			

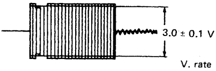
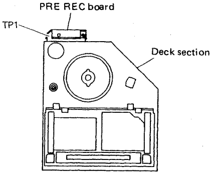
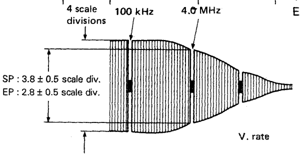
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
6	REC FM level	• REC	• Color bar • SP	• TP1 (REC FM OUT) [0][3] PRE-REC	• R813 (REC FM LEVEL)	1) Adjust R813 to obtain 1.6 V as the FM level in the pedestal section.  **Fig. 2-4-6(B)** Test point of PRE REC board
			 **Fig. 2-4-6(A)** REC FM level			
7	Video EQ					**Note:** *This adjustment ahould be performed only when a playback picture at self-recording is not sharp (low by 2 MHz component) or there is B/W reversal (high by 2 MHz component) in it after the upper drum was replaced.*
		• REC ↓ PB	• Color sweep • SP/EP	• TP3 (S Y OUT) [0][2] JACK	• R819 (N SP VIDEO EQ) • R820 (N EP VIDEO EQ)	1) Connect the S cable to S output terminal. 2) Record the color sweep signal in SP mode and play it to obaseve waveform at TP3. 3) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R819 so that 2 MHz marker level becomes 3.0 scale divisions. 4) After the above adjustment for SP mode, change the mode to EP and perform the recording and playback of the color sweep signal in the same manner as the step 1) and adjust R820 so that the level of the 2 MHz marker is 2.8 scale divisions. **Note:** *After re-assembling the deck and camera sections together with, record a high contrast object in the SP and EP modes. While observing the playback picture, confirm that there is no B/W reversal and picture is sharp.*
		 4 scale divisions 100 kHz 2 MHz SP : 3.0 ± 0.3 scale div. EP : 2.8 ± 0.3 scale div. V. rate **Fig. 2-4-7** Video EQ				
		• REC ↓ PB	• Color bar	• Monitor TV	• R819 (N SP VIDEO EQ) • R820 (N EP VIDEO EQ)	Alternate method 1) Record the color bar signal in SP and EP modes and play it back to observe the picture and adjust R819 and R820 for the best resolution, without impaired S/N. 2) So after adjustment, confirm black or white spot.

2.4.2 S-VHS signal circuit

Note: • *Before proceeding to do each adjustment, check the adjustment value.*
- *Unless otherwise specified, playback and recording modes are S-VHS mode, and all measurement points and adjustment parts are located on* 01 *VTR board.*

<table>
<tr><th>No.</th><th>Item</th><th>Mode</th><th>Signal & Setting</th><th>Measurement Point</th><th>Adjustment Parts</th><th>Adjustment Procedure</th></tr>
<tr><td rowspan="3">1</td><td rowspan="3">S EE Y level</td><td colspan="5">• <i>This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.</i></td></tr>
<tr><td>• EE</td><td>• Color bar</td><td>• TP3 (S Y OUT) 02 JACK</td><td>• R826 (S EE Y LEVEL)</td><td rowspan="2">1) Connect the S cable to S output terminal.
2) Confirm Y level of 1.0 Vp-p at TP3.
3) If necessary, replace R826 with the variable resistor NVP1301-222N and adjust it for 1.0 Vp-p.</td></tr>
<tr><td colspan="4">
Fig. 2-4-8 EE Y level</td></tr>
<tr><td rowspan="3">2</td><td rowspan="3">PB Y level</td><td colspan="5">• <i>This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.</i></td></tr>
<tr><td>• PB</td><td>• Alignment tape SP color bar (MHV-2HC or MH-C1H)</td><td>• TP1 (VIDEO OUT) 02 JACK</td><td>• R815 (S PB Y LEVEL)</td><td rowspan="2">1) Play the color bar signal of the alignment tape to confirm that Y level is 1.0 Vp-p at TP1 in playback.
2) If necessary, replace R815 with the variable resistor NVP1301-104N and adjust it so that the Y level is 1.0 Vp-p.</td></tr>
<tr><td colspan="4">
Fig. 2-4-9 S PB Y level</td></tr>
<tr><td rowspan="3">3</td><td rowspan="3">Sub emphasis input level</td><td colspan="5">• <i>This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.</i></td></tr>
<tr><td>• EE</td><td>• Color bar</td><td>• TP508 (SUB EMPHA IN)</td><td rowspan="2">• R802 (SUB EMPHASIS INPUT LEVEL)</td><td rowspan="2">1) Confirm that signal level is 0.40 Vp-p at TP508.
2) If necessary, replace R802 with the variable resistor NVP1301-471N and adjust it for 0.40 Vp-p.</td></tr>
<tr><td colspan="3">
Fig. 2-4-10 Sub emphasis input level</td></tr>
</table>

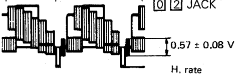
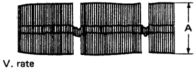
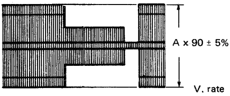
<table>
<tr><th>No.</th><th>Item</th><th>Mode</th><th>Signal & Setting</th><th>Measurement Point</th><th>Adjustment Parts</th><th>Adjustment Procedure</th></tr>
<tr><td rowspan="3">4</td><td rowspan="3">Sub emphasis output level</td><td colspan="5">• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*</td></tr>
<tr><td>• EE</td><td>• Color bar</td><td>• TP507 (SUB EMPHA OUT)</td><td>• R803 (SUB EMPHASIS OUTPUT LEVEL)</td><td rowspan="2">1) Confirm that signal level is 0.50 Vp-p at TP507.
2) If necessary, replace R803 with the variable resistor NVP1301-103N and adjust it for 0.50 Vp-p.</td></tr>
<tr><td colspan="4">
Fig. 2-4-11 Sub emphasis output level</td></tr>
<tr><td rowspan="3">5</td><td rowspan="3">White & Dark clip</td><td colspan="5">• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*</td></tr>
<tr><td>• EE</td><td>• Color bar
• EP</td><td>• TP505 (EMPHASIS OUT)</td><td>• R805 (S WHITE CLIP)
• R806 (S DARK CLIP)</td><td rowspan="2">1) Confirm that white clip is 105% at TP505.
2) If necessary, replace R805 with the variable resistor NVP1301-222N and adjust it for 105% white clip.
3) Confirm that dark clip is 70% at TP505.
4) If necessary, replace R806 with the variable resistor NVP1301-223N and adjust it for 70% dark clip.</td></tr>
<tr><td colspan="4">
Fig. 2-4-12 S white & dark clip</td></tr>
<tr><td rowspan="5">6</td><td rowspan="5">Carrier deviation</td><td colspan="5">• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*</td></tr>
<tr><td></td><td></td><td></td><td></td><td>**Note:** *This adjustment should be performed only when EE and playback of the pre-recorded tape are normal, while the sync at self-recording is distorted (poor carrier set) or S/N is extremely poor (poor deviation).*</td></tr>
<tr><td>• EE</td><td>• No input signal
• SP</td><td>• TP504 (REC FM OUT)</td><td>• R810 (S CARRIER)</td><td>1) Connect a frequency counter to TP504, and confirm that frequency is 5.4 MHz ± 50 kHz without input signal.
2) If necessary, replace R810 with the variable resistor NVP1301-333N and adjust it for the specified value.</td></tr>
<tr><td>• REC
↓
PB</td><td>• Color bar
• SP</td><td>• TP1 (VIDEO OUT)
⓪ ② JACK</td><td>• R808 (S DEVIATION)</td><td rowspan="2">3) Record the color bar signal and play it to confirm that Y level is 1.0 Vp-p at TP1 in plyback.
4) If necessary, replace R808 with the variable resistor NVP1301-103N and adjust it in recording, and then confirm the result in playback.</td></tr>
<tr><td colspan="4">
Fig. 2-4-13 Carrier/deviation</td></tr>
</table>

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	REC FM level	• REC	• Color bar • SP	• TP1 (REC FM OUT) $\boxed{0}\boxed{3}$ PRE REC	• R812 (S REC FM LEVEL)	1) Connect the oscilloscope to TP1 of the PRE REC board. 2) Adjust R812 so that FM level of the pedestal portion is 3.0 V.
		 Fig. 2-4-14 (A) REC FM level				 Fig. 2-4-14(B) Test point of PRE REC board
8	Video EQ					**Note:** *This adjustment should be performed only when a playback picture at self-recording is not sharp or there is B/W reversal in it after the upper drum was replaced.*
		• REC ↓ PB	• Color sweep • SP/EP	• TP3 (S Y OUT) $\boxed{0}\boxed{2}$ JACK	• R817 (S SP VIDEO EQ) • R818 (S EP VIDEO EQ)	1) Connect the S cable to S output terminal. 2) Record the color sweep signal and play it to observe waveform at TP3. 3) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R817 so that 4.0 MHz marker level becomes 3.8 scale divisions. 4) After the above adjustment for SP mode, change the mode to EP and perform the recording and playback of the color sweep signal in the same manner as the step 1) and adjust R818 so that the level of the 4.0 MHz marker is 2.8 scale divisions.
		 4 scale divisions 100 kHz 4.0 MHz SP : 3.8 ± 0.5 scale div. EP : 2.8 ± 0.5 scale div. V. rate Fig. 2-4-15 Video EQ				**Note:** *After re-assembling the deck and camera sections together with, record a high contrast object in the SP and EP modes. While observing the playback picture, confirm that there is no B/W reversal and picture is sharp.*
		• REC ↓ PB	• Color bar	• Monitor TV	• R817 (S SP VIDEO EQ) • R818 (S EP VIDEO EQ)	Alternate method 1) Record the color bar signal in SP and EP modes and play it back to observe the picture and adjust R817 and R818 for the best resolution, without impaired S/N. 2) So after adjustment, confirm black or white spot.

2.5 COLOR SIGNAL CIRCUIT

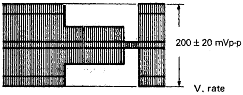
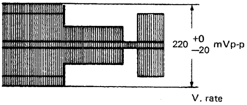
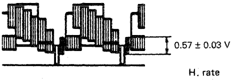
2.5.1 N (normal) VHS color signal circuit

Note: • *Before proceeding to do each adjustment, check the adjustment value.*
• *Unless otherwise specified, playback and recording modes are normal VHS mode, and all measurement points and adjustment parts are located on $\boxed{0}\boxed{1}$ VTR board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	320 fH VCO	• EE	• No input signal	• TP515 (SUB BM OUT) • TP501 (GND) • TP514 (VCXO OUT 2) • TP109 (DURM FF)	• C639 (320 fH VCO)	1) Connect a frequency counter to TP515. 2) Connect a jumping wire between TP501 and TP514. 3) Confirm 0 V (L) at TP109. When it is (H), turn off the power once and turn it on again. Repeat this operation until the potential becomes (L). 4) Adjust C639 so that the frequency becomes 633.3 ± 2 kHz.
2	VXO	• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)	• TP513 (VXO OUT 1)	• C623 (VXO)	1) Connect a frequency counter to TP513. 2) Adjust C623 so that the frequency becomes 3.579545 MHz ± 50 Hz.
3	EE burst level	• *This circuit uses fixed resistors. If IC504 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• EE	• Color bar	• TP1 (VIDEO OUT) $\boxed{0}\boxed{2}$ JACK	• R828 (EE BURST LEVEL)	1) Confirm burst level is 0.57 V at TP1. 2) If necessary, replace R828 with the varibale resistor NVP1301-152N and adjust it for 0.57 V.
		 Fig. 2-5-1 EE burst level				
4	REC color level	• PB	• Alignment tape SP color bar (MHV-2HC or MH-C1)	• TP511 (PB COLOR 2) • TP109 (DURM FF) (Ext.trigger)		1) Play back the color bar signal of the alignment tape. 2) Observe waveform at TP511 with external trigger from TP109. 3) Note of the higher channel level for "A".
		 Fig. 2-5-2(A) PB color ACC input level of 'A' (MH-C2)				
		• REC ↓ PB	• Color bar • SP		• R825 (N REC COLOR LEVEL)	4) Record the color bar signal in SP mode, and play it to observe waveform at TP511. 5) Adjust R825 repeatedly in recording so that the higher channel level is "A" x 90% in playback.
		 Fig. 2-5-2(B) REC color level				

2.5.2 S-VHS color signal circuit

Note: • *Before proceeding to do each adjustment, check the adjustment value.*
• *Unless otherwise specified, playback and recording modes are S-VHS mode, and all measurement points and adjustment parts are located on the 0 1 VTR board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	PB Acc input level	• PB	• Alignment tape SP color bar (MHV-2HC or MH-C1H)  **Fig. 2-5-3** PB AC input level	• TP511 (PB COLOR 2) • TP109 (DRUM FF) (Ext trigger)	• R821 (PB COLOR LEVEL)	1) Play back the color bar signal of the alignmect tape. 2) Obesrve waveform at TP511 with external trigger from TP109. 3) Adjust R821 so that the higher channel level is 220 mVp-p.
2	REC color level	• REC ↓ PB	• Color bar • SP  **Fig. 2-5-4** REC color level	• TP511 (PB COLOR 2) • TP109 (DRUM FF)	• R824 (S REC COLOR LEVEL)	1) Record color bar signal in SP mode and play it back. 2) Observe waveform at TP511 with external trigger from TP109. 3) Adjust R824 so that tha higher level of channels is 220 mVp-p.
3	PB burst level	• REC ↓ PB	• Color bar • SP  **Fig. 2-5-5** PB burst level	• TP1 (VIDEO OUT 0 2 JACK	• R823 (PB BURST LEVEL)	1) Record the color bar signal and play it to observe waveform at TP1 and adjust R823 so that burst level becomes 0.57 V.

2.6 AUDIO CIRCUIT

2.6.1 Normal audio circuit

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on 01 VTR board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Bias level	• REC	• Non-signal	• TP33 (REC BIAS) • TP34 (REC BIAS GND)	• R86 (BIAS LEVEL)	1) Connect an audio level meter to respective ends of TP33 and TP34. 2) Adjust R86 to obtain –51 dBs (6.5 mVp-p, 2.3 mVrms) in REC mode.
2	PB audio level	• EE • REC ↓ PB	• 1 kHz sine wave	• TP32 (AUDIO OUT)	• R60 (AUDIO PB LEVEL)	1) In EE mode, input 1 kHz, –68 dBs (0.9 mVp-p, 0.32 mVrms) sine wave to the external mic. jack. 2) Fine adjust output of the audio level meter so that signal level at pin 8 of the AV jack of the JACK board is –6 dBs (1.1 Vp-p, 0.39 Vrms). 3) In playback of self-recorded signal, adjust R60 so that signal level at TP32 is –6 dBs (1.1 Vp-p, 0.39 Vrms).

2.6.2 Hi-Fi audio circuit

Note: *Unless otherwise specified, all adjustment points and adjustment parts are located on 0 6 A/V SUB.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	REC FM fo	• *This circuit uses fixed resistors. If IC101 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• REC	• No input audio signal	• TP107 (AUDIO L IN)	• R204 (L CARRIER)	1) Connect a frequency counter to TP107, and confirm that the frequency is 1.3 MHz ± 5 kHz. 2) If necessary, replace R204 with the variable resistor NVP1201-103N, and adjust them for 1.3 MHz. 3) Connect a frequency counter to TP108, and confirm that the frequency is 1.7 MHz ± 5 kHz. 4) If necessary, replace R201 with the variable resistor NVP1201-332N, and adjust it for 1.7 MHz.
2	Deviation	• *This circuit uses fixed resistors. If IC101 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• REC then PB	• SP	• TP105 (AUDIO L OUT) • TP106 (AUDIO R OUT)	• R203 (L DEVIATION) • R202 (R DEVIATION)	1) Supply a sine wave of 1 kHz, –8 dBs (0.9 Vp-p, 0.32 Vrms) to the AUDIO IN terminal. 2) Confirm that output level is –6 dBs (1.1 Vp-p 0.39 Vrms) ± 1 dBs. 3) If necessary, replace R203 and R202 with the variable resistor NVP1301-102NU respectively, and adjust them for –6 dBs.
3	Hi-Fi PB level	• PB	• Alignment tape SP stairstep (FM audio 1 kHz) (MHAF-1C)	• TP101 (L DEMOD IN)	• R205 (Hi-Fi PB LEVEL)	1) Play back the FM audio segment of the alignment tape. 2) Adjust R205 so that signal level is 110 mV at TP101.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	N Hi-Fi REC level	• REC then PB	• EP • No input audio signal • Input color bar signal • Manual tracking	• TP104 (A REC FM)	• R208 (N Hi-Fi REC LEVEL)	1) Only supply color bar signal. 2) Preform recording with an VHS tape and play it back. 3) Adjust R208 so that the lower level of two channels is 45 mVp-p in playback.
5	S Hi-Fi REC level	• REC then PB	• EP • No input audio signal • Input color bar signal • Manual tracking	TP104 (A REC FM)	R207 (S Hi-Fi REC LEVEL)	1) Only supply color bar signal. 2) Perform recording with an S-VHS tape and play it back. 3) Adjsut R207 so that the lower level of two channels is 45 mVp-p in playback.

ADTUSTMENT ELEMENT LOCATION FOR DECK SECTION

— VTR —

R808	S DEVIATION
R809	N DEVIATION
R810	S CARRIER
R811	N CARRIER
R812	S REC FM LEVEL
R813	N REC FM LEVEL
R814	N PB Y LEVEL
R815	S PB Y LEVEL
TP504	CARR/DEVI
TP505	EMPHASIS OUT

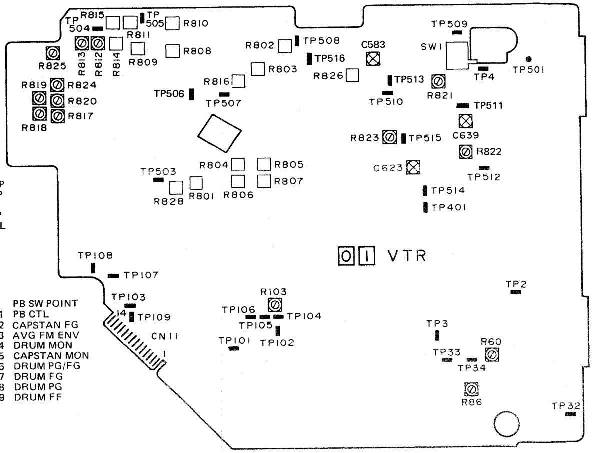
R802	SUB EMPHA INPUT LEVEL
R803	SUB EMPHA OUTPUT LEVEL
R816	YNR INPUT LEVEL
R826	EE BURST LEVEL
TP506	YNR OUT
TP507	SUB EMPHA OUT
TP508	SUB EMPHA IN
TP516	KILLER DET OUT

R821	PB COLOR LEVEL
TP4	REG 12V
TP501	GND
TP509	BPF OUT
TP510	PILOT BURST MIX OU
TP511	PB COLOR2
TP513	VCXO OUT1
C583	PILOT BURST PHASE

R817	S SP VIDEO EQ
R818	S LP VIDEO EQ
R819	N SP VIDEO EQ
R820	N LP VIDEO EQ
R824	S REC COLOR LEVEL
R825	N REC COLOR LEVEL

R801	EE Y LEVEL
R804	N WHITE CLIP
R805	S WHITE CLIP
R806	S DARK CLIP
R807	N DARK CLIP
R828	S EE Y LEVEL
TP503	C SYNC

R103	PB SW POINT
TP101	PB CTL
TP102	CAPSTAN FG
TP103	AVG FM ENV
TP104	DRUM MON
TP105	CAPSTAN MON
TP106	DRUM PG/FG
TP107	DRUM FG
TP108	DRUM PG
TP109	DRUM FF


TP 504
R815
TP 505
R810
R811
R808
R809
R825
R813
R812
R814
R819
R824
R820
R817
R818
R802
TP508
TP516
R803
R816
R826
C583
TP509
SW1
TP4
TP501
TP513
R821
TP510
TP506
TP507
TP511
C639
R823
TP515
R822
C623
TP512
TP514
TP401
TP503
R804
R805
R807
R828
R801
R806
01 VTR
TP108
TP107
TP103
14
TP109
CN11
1
R103
TP106
TP104
TP105
TP101
TP102
TP2
TP3
R60
TP33
TP34
R86
TP32

ADTUSTMENT ELEMENT LOCATION FOR DECK SECTION

— VTR —

R808	S DEVIATION
R809	N DEVIATION
R810	S CARRIER
R811	N CARRIER
R812	S REC FM LEVEL
R813	N REC FM LEVEL
R814	N PB Y LEVEL
R815	S PB Y LEVEL
TP504	CARR/DEVI
TP505	EMPHASIS OUT

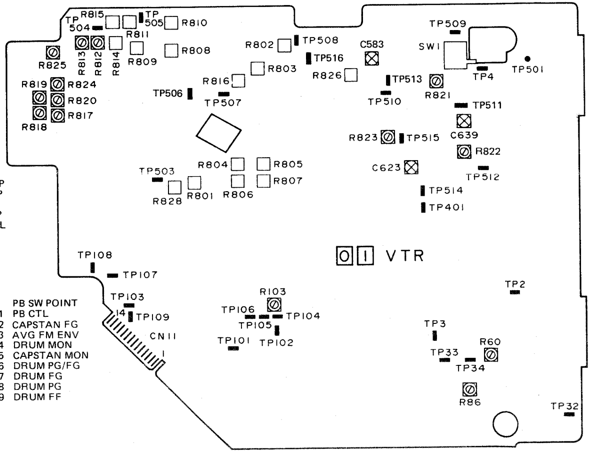
R802	SUB EMPHA INPUT LEVEL
R803	SUB EMPHA OUTPUT LEVEL
R816	YNR INPUT LEVEL
R826	EE BURST LEVEL
TP506	YNR OUT
TP507	SUB EMPHA OUT
TP508	SUB EMPHA IN
TP516	KILLER DET OUT

R821	PB COLOR LEVEL
TP4	REG 12V
TP501	GND
TP509	BPF OUT
TP510	PILOT BURST MIX OUT
TP511	PB COLOR2
TP513	VCXO OUT1
C583	PILOT BURST PHASE

R817	S SP VIDEO EQ
R818	S LP VIDEO EQ
R819	N SP VIDEO EQ
R820	N LP VIDEO EQ
R824	S REC COLOR LEVEL
R825	N REC COLOR LEVEL

R801	EE Y LEVEL
R804	N WHITE CLIP
R805	S WHITE CLIP
R806	S DARK CLIP
R807	N DARK CLIP
R828	S EE Y LEVEL
TP503	C SYNC

R103	PB SW POINT
TP101	PB CTL
TP102	CAPSTAN FG
TP103	AVG FM ENV
TP104	DRUM MON
TP105	CAPSTAN MON
TP106	DRUM PG/FG
TP107	DRUM FG
TP108	DRUM PG
TP109	DRUM FF

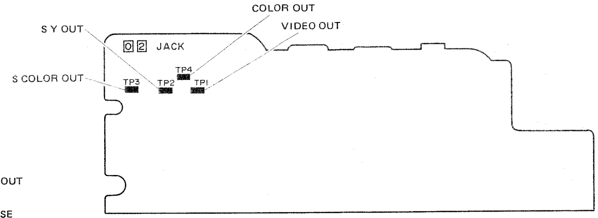


TP 504
R815
TP 505
R810
R811
R813
R812
R814
R809
R808
R825
R819
R824
R820
R817
R818
R802
TP508
C583
TP516
R803
R816
R826
TP506
TP507
TP509
SW1
TP4
TP501
TP513
R821
TP510
TP511
R823
TP515
C639
R822
R804
R805
R807
R801
R806
R828
TP503
C623
TP512
TP514
TP401
01 VTR
TP108
TP107
TP103
14
TP109
CN11
1
R103
TP106
TP104
TP105
TP101
TP102
TP2
TP3
R60
TP33
TP34
R86
TP32

R822	PILOT BURST LEVEL
R823	PB BURST LEVEL
C623	VXO
C639	320FH VCO
TP401	HD
TP512	AFC DET
TP514	VCXO OUT2
TP515	SUB BM OUT

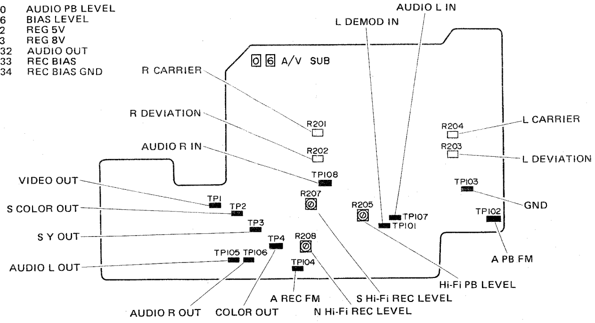
R60	AUDIO PB LEVEL
R86	BIAS LEVEL
TP2	REG 5V
TP3	REG 8V
TP32	AUDIO OUT
TP33	REC BIAS
TP34	REC BIAS GND

— JACK —



COLOR OUT
VIDEO OUT
S Y OUT
02 JACK
TP4
S COLOR OUT
TP3
TP2
TP1

— A/V SUB —

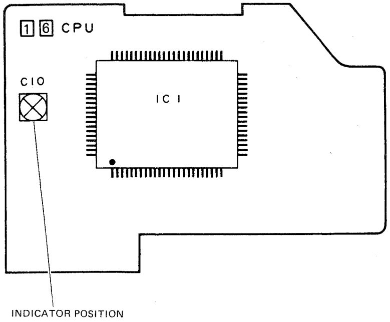


AUDIO L IN
L DEMOD IN
R CARRIER
06 A/V SUB
R DEVIATION
R201
R204
L CARRIER
R202
R203
L DEVIATION
AUDIO R IN
TP108
VIDEO OUT
TP103
R207
TP1
TP2
R205
TP107
TP101
TP102
GND
S COLOR OUT
TP3
S Y OUT
TP4
R208
TP105 TP106
TP104
A PB FM
AUDIO L OUT
Hi-Fi PB LEVEL
A REC FM
S Hi-Fi REC LEVEL
AUDIO R OUT
COLOR OUT
N Hi-Fi REC LEVEL

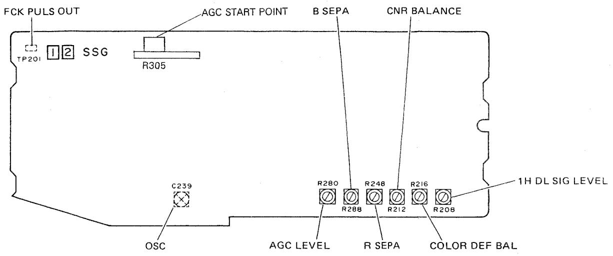
SECTION 3
CAMERA SECTION ADJUSTMENT

■ ADJUSTMENT ELEMENT LOCATION FOR CAMERA SECTION

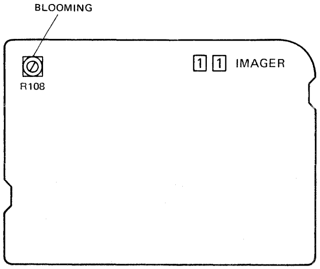
— CPU —


1 6 CPU
C10
IC 1
INDICATOR POSITION

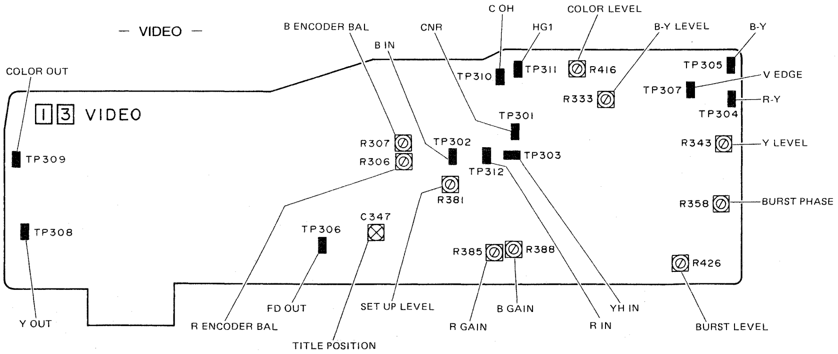
— SSG —


FCK PULS OUT
AGC START POINT
B SEPA
CNR BALANCE
TP201
1 2 SSG
R305
C239
R280
R248
R216
R288
R212
R208
1H DL SIG LEVEL
OSC
AGC LEVEL
R SEPA
COLOR DEF BAL

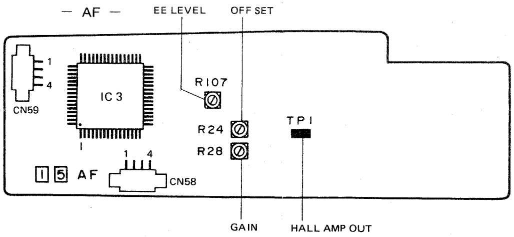
— IMAGER —


BLOOMING
R108
1 1 IMAGER

— VIDEO —


C OH
COLOR LEVEL
B ENCODER BAL
CNR
HG1
B-Y LEVEL
B-Y
B IN
COLOR OUT
TP310
TP311
R416
TP305
V EDGE
TP307
R333
R-Y
TP304
1 3 VIDEO
TP301
R307
TP302
R343
Y LEVEL
TP309
R306
TP303
TP312
R381
R358
BURST PHASE
C347
TP306
TP308
R385
R388
R426
FD OUT
SET UP LEVEL
B GAIN
YH IN
Y OUT
R ENCODER BAL
R GAIN
R IN
BURST LEVEL
TITLE POSITION

— AF —


EE LEVEL
OFF SET
1
4
CN59
IC 3
R107
R24
R28
TP1
1
1 4
1 5 AF
CN58
GAIN
HALL AMP OUT

3.1 PREPARATION

3.1.1 Setup

1. Referring to Section 1.5 "DISASSEMBLY OF CAMERA SECTION", disassemble the main unit and make connections as shown in Fig. 3-1-1.
2. For adjustments, set the camera to the following operation mode unless otherwise indicated.
   - Rehearsal mode
   - Standard shutter speed
   - Manual focusing
   - * For white balance mode, illuminate the WB (white balance) sensor by 3,100 K light to realize the conditions of the INDOOR mode.
3. For observing waveform by an oscilloscope at H. rate, connect CH-B of the oscilloscope with TP1 (VIDEO OUT) of $\boxed{0}\boxed{2}$ JACK board synchronizing with minus trigger. Connect CH-A to the specified test point for measurement.

3.1.2 Precaution

1. For illumination, use two or more lighting apparatuses to illuminate the whole of the test chart and the WB sensor uniformly.
2. Color temperature of lighting must be 3,100 K or more and intensity of illumination must be 3,000 lux or more in the center of the test chart.
3. Use a clean and undamaged test chart and filters.
4. Prevent the test chart and the WB sensor from any light other than the specified light source.

3.1.3 Connection for adjustment

Disassemble the main unit from the other units, and connect it with test equipment as shown in Fig. 3-1-1.

Connector	No. of pins	Part No.	Connection
①	9	PEMCJ0793A-9	$\boxed{1}\boxed{8}$ DISPLAY CN1 ↔ CPU PWB WIRE
②	9	PEMCJ0793A-9	$\boxed{1}\boxed{7}$ JUNCTION CN2 ↔ CPU PWB WIRE
③	12	YUJ41361B-12	OPERATION (DECK) CN1⟺$\boxed{0}\boxed{1}$ VTR CN5
④	7	YUJ40095A-7	$\boxed{1}\boxed{6}$ CPU CN15 ↔ White balance sensor

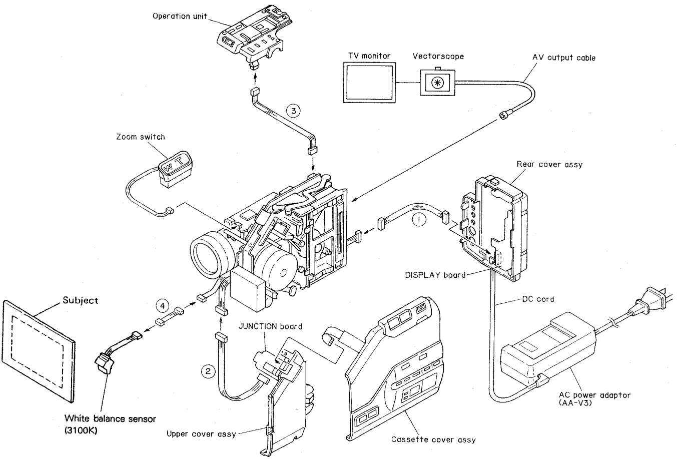
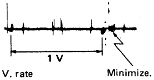
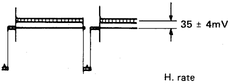
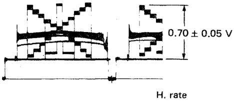
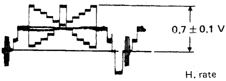
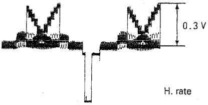
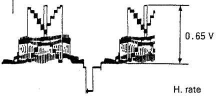

Operation unit
TV monitor
Vectorscope
AV output cable
③
Zoom switch
Rear cover assy
①
DISPLAY board
Subject
④
DC cord
JUNCTION board
②
AC power adaptor
(AA-V3)
White balance sensor
(3100K)
Upper cover assy
Cassette cover assy

Fig. 3-1-1 Setup for inspection and adjustment of camera section

3.2 LUMINANCE (Y) SIGNAL CIRCUIT

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Osc.	•EE		•TP201(FCK PULSE OUT) $\boxed{1}\boxed{2}$ SSG	•C239 (OSC) $\boxed{1}\boxed{2}$ SSG	1) Connect a frequency counter to TP201 and adjust C239 to obtain 12.713287 MHz.
2	Vertical enhancer balance	•EE	•Gray scale  **Fig. 3-2-1** V. edge	•TP307 (V EDGE) $\boxed{1}\boxed{3}$ VIDEO	•R208 (1H DL SIG LEVEL) $\boxed{1}\boxed{2}$ SSG	1) Pick up the gray scale and observe waveform at TP307. 2) Adjust R208 to minimize average level of the waveform.
3	Setup level	•EE	•Lens: Closed  **Fig. 3-2-2** Setup level	•TP308 (Y OUT) $\boxed{1}\boxed{3}$ VIDEO	•R381 (SET UP LEVEL) $\boxed{1}\boxed{3}$ VIDEO	1) Close the lens with the cap and observe waveform at TP308. 2) Adjust R381 so that set up level is 35 mV.
4	Hall element	•EE	•Iris: Closed •Iris: Open •Gray scale	•TP1 (HALL AMP OUT) •CN59 pin 4 $\boxed{1}\boxed{5}$ AF •TP501 (GND) •TP2 (REG 5 V) $\boxed{0}\boxed{1}$ VTR	•R24 (OFFSET) $\boxed{1}\boxed{5}$ AF •R28 (GAIN) $\boxed{1}\boxed{5}$ AF	1) Shortcircuit between pin 4 of CN59 of the AF board and TP501 of the VTR board with jumper wire, and close the iris. 2) Connect a digital voltmeter to TP1 and adjust R24 so that the meter reads $1.0^{+0.3}_{-0}$ V DC. 3) Disconnect 1) shortcircuit between CN59, pin 4 and TP501. 4) Shortcircuit between pin 4 of CN59 of the AF board and TP2 of the VTR board with jumper wire, and open the iris. 5) Pick up the gray scale and adjust R28 so that signal level at TP1 is $3.9^{+0}_{-0.1}$ V DC.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
5	EE level  **Fig. 3-2-3** EE level	• EE	• Gray scale	• TP308 (Y OUT) [1][3] VIDEO	• R107 (EE LEVEL) [1][5] AF	1) Pick up the gray scale and adjust R107 so that waveform level at TP308 is 0.70 V.
6	Y level  **Fig. 3-2-4** Y level	• EE	• Gray scale	• TP1 (VIDEO OUT) [0][2] JACK	• R343 (Y LEVEL) [1][3] VIDEO	1) Pick up the gray scale and observe waveform at TP1. 2) Adjust R343 so that the waveform level becomes 0.7 V.
7	AGC  **Fig. 3-2-5** AGC	• EE	• Gray scale • Zoom SW: maximum wide • Gain up button: OFF • Lens: with ND8 + ND8 + ND8 Filters	• TP308 (Y OUT) [1][3] VIDEO	• R280 (AGC LEVEL) [1][2] SSG	1) Pick up the gray scale and set the Zoom swith for maximum wide. 2) Set the Gain up to OFF by the Gain up button. 3) Apply ND8 + ND8 + ND8 filters to the lens. 4) Adjust R280 so that the waveform level becomes 0.3 V.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
8	AGC start point	• EE	• Gray scale • Zoom SW: maximum wide • Gain up button: ON • Lens: with ND8 + ND8 Filters  **Fig. 3-2-6** AGC S.P	• TP308 (Y OUT) $\boxed{1}\boxed{3}$ VIDEO	• R305 (AGC START POINT) $\boxed{1}\boxed{2}$ SSG	1) Pick up the gray scale and set the Zoom switch for maximum wide. 2) Set the Gain up to ON by the Gain up button. 3) Apply ND8 + ND8 filters to the lens. 4) Adjust R305 so that the waveform level becomes 0.65 V.
9	Blooming	• EE		• TV monitor screen	• R108 (BLOOMING) $\boxed{1}\boxed{1}$ IMAGER	1) Pick up a fluorescent light and adjust R108 to minimize blooming. Note: *No matter how for R108 is turned, there will be no change in blooming observed on the monitor. Therefore, set R108 to a position where blooming is minimum and won't change any more.*
10	Indicator position	• EE	• Lens: Closed	• E. VF indicator	• C10 (INDICATOR POSITION) $\boxed{1}\boxed{6}$ CPU	1) Close the lens with the cap. 2) Display the 'Low Contrast' indication (⛰◀▶👤) on the E. VF indicator. 3) Adjust C10 to position the Low Contrast indication in the center of the indicator.
11	Title position	• EE		• TP306 (FD OUT) $\boxed{1}\boxed{3}$ VIDEO	• C347 (TITLE POSITION) $\boxed{1}\boxed{3}$ VIDEO	1) Connect a digital voltmeter to TP306 and adjust C347 to obtain 2.5 ± 0.1 V DC.

3.3 COLOR (C) SIGNAL CIRCUIT

3.3.1 Auto white balance

Note: *This adjustment must be performed only when either IC2 of the CPU board or the white balance sensor is replaced.*

Otherwise, only perform the 'Standard indoor mode' described in the section 3.3.2.

When this adjustment is carried out, make sure to proceed to adjust the 'Standard indoor mode' of the section 3.3.2.

1. Setup of E. VR adjuster

1) With power off, make connections of the E. VR adjuster and all of the equipment as shown in Fig. 3-3-1.
2) Supply 5 V DC to the E. VR adjuster, and press the RESET button.
   All 7-segment LEDs flashes with display of "88".
3) Supply 6 V DC to the camera.
4) Press the START button of the E. VR adjuster.
   After display of "SET-DATA" goes out, then channel indication flashes with display of "00".
5) Press the power switch of the camera.
   The camera automatically enters the on screen mode as it is in the EE through picture condition.
   For detail of hexadecimal number appearing in 4 times 2 figures in the lower part of the screen, see Fig. 3-3-2.
6) Press the REHEARSAL button of the camera.
   Otherwise, the auto power save function will be activated approximately 5 minutes after and the power supply to the camera is cut off, since the deck is in the Stop mode at that time.

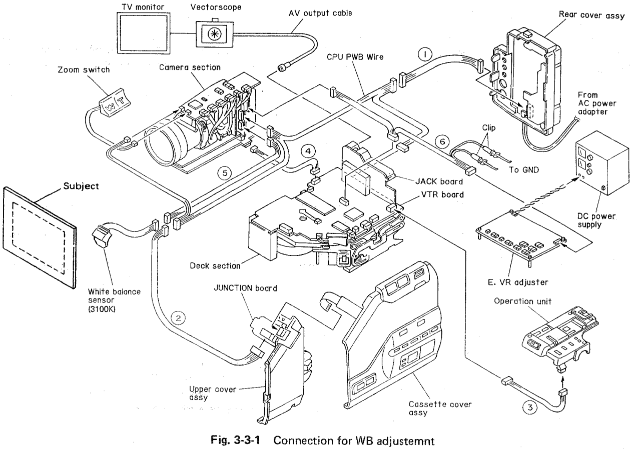
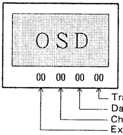

TV monitor
Vectorscope
AV output cable
Rear cover assy
CPU PWB Wire
①
Zoom switch
Camera section
From AC power adapter
Clip
⑥
④
To GND
⑤
JACK board
Subject
VTR board
DC power supply
Deck section
White balance sensor (3100K)
JUNCTION board
E. VR adjuster
Operation unit
②
Upper cover assy
Cassette cover assy
③

Fig. 3-3-1 Connection for WB adjustemnt

Con-nector	No. of pins	Parts No.	Connection
①	9	PEMCJ0793A-9	$\boxed{1}\boxed{8}$ DISPLAY CN1 ↔ CPU PWB WIRE
②	9	PEMCJ0793A-9	$\boxed{1}\boxed{7}$ JUNCTION CN2 ↔ CPU PWB WIRE
③	12	YUJ41361B-12	$\boxed{0}\boxed{1}$ VTR CN5 ⬌ OPERATION (DECK)
④	12	YUJ41361B-12	$\boxed{1}\boxed{3}$ VIDEO CN304 ⬌ $\boxed{0}\boxed{1}$ VTR CN15
⑤	7	YUJ40095A-7	$\boxed{1}\boxed{6}$ CPU CN15 ↔ White balance sensor
⑥	16	YUJ41358B-16T	$\boxed{0}\boxed{1}$ VTR CN14 ⬌ E. VR adjuster


OSD
00 00 00 00

Transfer data
Data written in last
Channel
Execution command
(01: INITIALIZE, 04: WRITE, 05: READ,
07: CALCULATION, 08: END)

Fig. 3-3-2 Monitor screen in WB adjustment

2. Adjustment

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	R/G, B/G gain select setting	• EE	• White sensor: 3100 K		• 57 (TABLE) • 40 (R/G GAIN SELECT) • 41 (B/G GAIN SELECT) [E. VR]	1) Apply light of 3100 K to the white sensor. 2) Set data of the channel 57 of the E. VR adjuster to '00'. 3) Select channel 40 of the E. VR adjuster and press the MEMORY switch. 4) Select channel 41 of the E. VR adjuster and press the MEMORY switch.
2	G offset setting	• EE	• White balance sensor: Unexposed		• 58 (G OFFSET) [E. VR]	1) Cover the white balance sensor with black cloth etc. so it will not to be exposed to light. 2) Select channel 58 of the E. VR adjuster and press the MEMORY switch.
3	Indoor R/G, B/G setting	• EE	• White sensor: 3100 K		• 42 (INDOOR R/G) • 43 (INDOOR B/G) [E. VR]	1) Apply light of 3100 K to the white sensor. 2) Select channel 42 of the E. VR adjuster and press the MEMORY switch. 3) Select channel 43 of the E. VR adjuster and press the MEMORY switch.
4	Outdoor R/G, B/G setting	• EE	• White sensor: 3100 K • C12 filter		• 44 (OUTDOOR R/G) • 45 (OUTDOOR B/G) [E. VR]	1) Attach a C12 filter to the white sensor and apply light of 3100 K to it. 2) Select channel 44 of the E. VR adjuster and press the MEMORY switch. 3) Select channel 45 of the E. VR adjuster and press the MEMORY switch.
5	VRS, VBS setting	• EE			• 55 (VRS) • 56 (VBS) [E. VR]	1) Select channel 55 of the E. VR adjuster and press the MEMORY switch. 2) Select channel 56 of the E. VR adjuster and press the MEMORY switch.

3. End of adjustment

1) When adjustment finishes, press the END button of the E. VR adjuster.
   The on-screen mode is cancelled.
   If it is not cancelled, press the "+/–" button of the E. VR adjuster to reset it releasing from communication error, and then press the END button again.
   After display of "SET-DATA" goes out, channel indication comes on.
2) Press the RESET button of the E. VR adjuster, then turn off the power switch.
3) Turn off the power switch of the camera.
4) Disconnect the E. VR adjuster from the camera.

4. Operation of E. VR adjuster (see Fig. 3-3-3)

- Function of LEDs

1) CH display : Displays channel number of adjustment item in hexadecimal number.
   If communication error occurs, the CH number displayed just before the error occurs flashes.
2) JID-DATA : Displays adjustment data set by the E. VR adjuster in hexadecimal number.
3) SET-DATA : Displays data written in the EEPROM of the camera in hexadecimal number.
4) MEMORY : Lights in standby mode to write adjustment data.
   During this button on, pressing the MEMORY button does not activate to renew data of the EEPROM.

- Function of operation buttons

1) RESET : Press to initialize the E. VR adjuster system.
   Do not press this except for re-adjustment and without indication of the service manual.
2) START : To communicate use of the E. VR adjuster to the camera.
3) END : To communicate end of use of the E. VR adjuster.
4) MEMORY : To renew adjustment data.
   During the MEMORY LED off, this button is ineffective.
5) R/B : To adjust red and blue channels alternately in the lower channel in adjustment of the white balance system. (Not used in SX9)
6) +/– : To set CH of adjustment item.
   Holding down this button changes channels in succession.
   When this button is released from depressing, automatic data readout function is activated to read out data written in the designated channel from the camera, and readout data is displayed both in the SET-DATA and JIG-DATA LEDs.
7) UP/DOWN : To revise adjustment data.
   Holding down this button changes channels in succession, n. On the other hand, when it is released from depressing, adjustment data is automatically transferred to the camera.

- Communication error

When communication error occurs, the SET-DATA display goes out while the CH indication flashes.

To return the E. VR adjuster from communication error mode, reset channels.

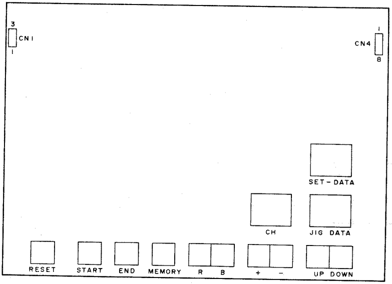
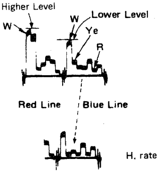
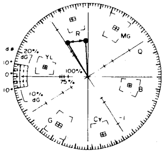
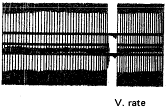
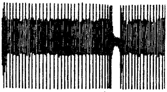
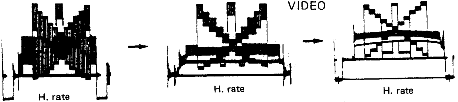
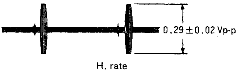
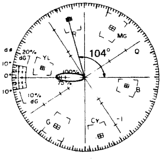
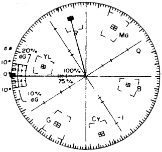
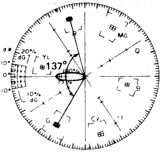


Fig. 3-3-3 Location of E. VR adjuster buttons

3.3.2 Standard indoor mode

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	R/B separation  Higher Level W W Lower Level Ye R Red Line Blue Line H. rate **Fig. 3-3-4** R/B balance	• EE	• Color bar	• TP302 (B IN) • TP312 (R IN) • TP308 (Y OUT) (Ext. trigger) $\boxed{1}\boxed{3}$ VIDEO	• R288 (B SEPA) • R248 (R SEPA) $\boxed{1}\boxed{2}$ SSG	1) Pick up the color bar pattern and connect the oscilloscope to TP302. 2) Observe the blue line (see Fig. 3-3-4) with external trigger from TP308. 3) Adjust R288 to equalize levels of the yellow and red lines. 4) Connect the oscilloscope to TP312. 5) Observe the blue line with external trigger from TP308. 6) Adjust R248 to equalize levels of the yellow and red lines.
2	Color difference balance  R MG Q dφ 20% dG YL 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-5** Color difference balance	• EE	• Color bar	• Vector-scope	• R216 (COLOR DEF BAL) $\boxed{1}\boxed{2}$ SSG	1) Pick up the color bar pattern. 2) Adjust R216 to minimize fluctuation of red dot.
3	CNR balance  V. rate **Fig. 3-3-6(A)** CNR balance (1) ➡  V. rate **Fig. 3-3-6(B)** CNR balance (2)	• EE	• Color bar	• TP301 (CNR) $\boxed{1}\boxed{3}$ VIDEO	• R212 (CNR BAL-ANCE) $\boxed{1}\boxed{2}$ SSG	1) Connect the oscilloscope to TP301. 2) Adjsut R212 to flatten the waveform.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	White balance	• EE	• Gray scale  **Fig. 3-3-7** White balance	• TP1 (VIDEO OUT) 02 JACK	• R306 (R ENCODER BAL) • R307 (B ENCODER BAL) • R385 (R GAIN) • R388 (B GAIN) 13 VIDEO	1) Pick up the gray scale and observe waveform at TP1. 2) Alternately adjust R306 and R307 to minimize carrier leakage in the lower 1st and 2nd steps of the waveform. 3) Next, alaternately adjust R385 and R388 to minimize carrier leakage in the higher 1st and 2nd steps of the waveform. 4) Repeat the above steps 2) and 3) to minimize carrier leakage in both.
5	Burst level	• EE	• Lens: Closed  **Fig. 3-3-8** Burst level	• TP309 (COLOR OUT) 13 VIDEO	• R426 (BURST LEVEL) 13 VIDEO	1) Close the lens with the cap. 2) Connect the oscilloscope to TP309. 3) Adjust R426 so that the burst level is 0.29 Vp-p.
6	Burst phase	• EE	• Color bar  104° MG R Q 20% dG YL 100% 75% 10% dG B G CY -I 10° 0° 10° **Fig. 3-3-9** Burst phase	• Vectorscope	• R85 (BURST PHASE) 12 VIDEO	1) Pick up the color bar pattern. 2) Adjust R85 so that the phase of R signal is 104° at an angle (reference position of R's phase) on the vectorscope.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	Color level	• EE	• Color bar  R MG Q YL 20% dG d° 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-10** Color level	• Vectorscope	• R416 (COLOR LEVEL) $\boxed{1}\boxed{3}$ VIDEO	1) Pick up the color bar pattern. 2) Adjust R416 so that color level of the red section of the color bars become 1.25 time larger than burst level. 3) Confirm that both adjustment results of the item No. 5 'Burst level' and this item (No. 7 'Color level') are satisfactory. If not, repeat the two adjustments alternately until they meet the specifications respectively.
8	Color phase	• EE	• Color bar  R MG Q YL 137° 20% dG d° 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-11** Color phase	• Vectorscope	• R333(B-Y LEVEL) $\boxed{1}\boxed{3}$ VIDEO	1) Pick up the color bar pattern. 2) Adjust R333 so that correlative angle of R and G phases is 137° on the vectorscope.

3.4 AUTO FOCUS ADJUSTMENT

3.4.1 Connection for adjustment

Referring to Section 1, disassemble the camera section from the other units and make connections as follows.

Connector	No. of pins	Part No.	Connection		
①	9	PEMCJ0793A-9	$\boxed{1}\boxed{8}$ DISPLAY CN1	↔	CPU PWB WIRE
②	9	PEMCJ0793A-9	$\boxed{1}\boxed{7}$ JUNCTION CN2	↔	CPU PWB WIRE
③	12	YUJ41361B-12	$\boxed{0}\boxed{1}$ VTR CN5	⬌	OPERATION (DECK)
④	12	YUJ41361B-12	$\boxed{1}\boxed{3}$ VIDEO CN304	⬌	$\boxed{0}\boxed{1}$ VTR CN15
⑤	16	YUJ41361B-16	$\boxed{1}\boxed{6}$ CPU CN11	⬌	$\boxed{0}\boxed{1}$ VTR CN14
⑥	6	YUJ41358B-6	DC-DC converter CN802	⬌	$\boxed{1}\boxed{5}$ AF CN52
⑦	16	YUJ41361B-16	$\boxed{1}\boxed{5}$ AF CN51	⬌	$\boxed{1}\boxed{6}$ CPU CN14
⑧	16	YUJ41361B-16	$\boxed{1}\boxed{1}$ IMAGER CN101	⬌	$\boxed{1}\boxed{2}$ SSG CN201

Set the camera (and camera subjects) so that the distance between the lens surface and a subject is more than 2.4 m. The setscrew of the infinite sensor can be adjusted through the AF adjustment hole provided on the IMAGER board.

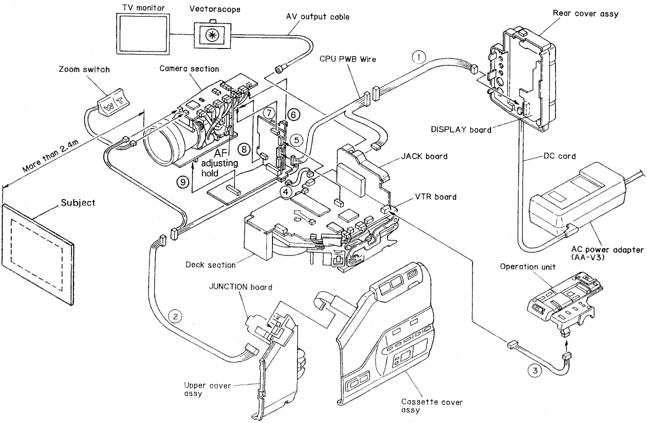
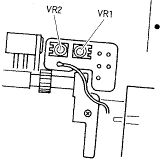
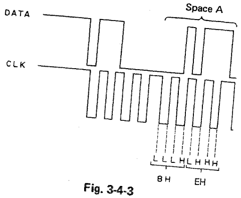
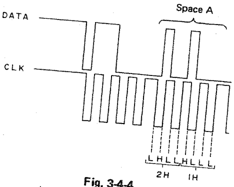

TV monitor
Vectorscope
AV output cable
Rear cover assy
CPU PWB Wire
①
Zoom switch
Camera section
W
T
⑦
⑥
⑤
⑧
⑨
④
AF adjusting hold
More than 2.4m
DISPLAY board
JACK board
DC cord
VTR board
Subject
AC power adapter (AA-V3)
Operation unit
Deck section
JUNCTION board
②
③
Upper cover assy
Cassette cover assy

Fig. 3-4-1 Connection for auto focus adjustment

3.4.2 Adjustment

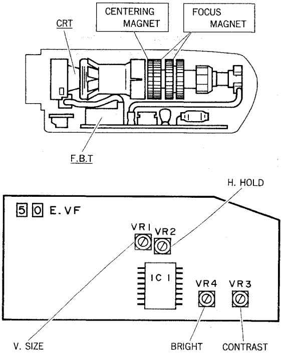
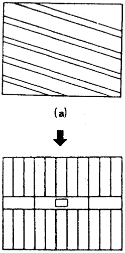
Notes:
- *This adjustment must be performed after replacement if the zoom motor. AF motor, OP block assy or Focus CTL CPU.*
- *When only the zoom motor is replaced, the adjustment of the Item No. 2 is not required.*
- *Unless otherwise specified, measurement points are located on 1 5 AF board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Confirmation	• EE	• Subject at a distance of more than 2.4 m	• IC3 pin 64 (PHOTO TR IN)		1) Turn off the power and shortcircuit pin 45 of IC3 to GND. 2) Turn on the power and shoot a subject in a distance of more than 2.4 m in the Rehearsal mode. 3) Confirm that voltage at pin 64 of IC3 is 2.22 ± 0.05 V. 4) Shoot a subject in a distance between 2 and 3 m by zooming from the TELE to WIDE positions and vice versa a few times in order to confirm that the picture is nearly in focus in every zooming position.
2	Zoom AD adjust  Fig. 3-4-2  Fig. 3-4-3  Fig. 3-4-4	• EE	–	• IC3 pin 50 (DATA) • IC3 pin 49 (CLK)	• VR1 (TELE AD LEVEL) • VR2 (SETUP LEVEL) <OP BLOCK>	1) With power supply off, connect channel 1 of a dual trace oscilloscope to IC3 pin 50 and channel 2 to IC3 pin 49. 2) Connect IC3 pin 45 to ground. 3) Supply power and set for the Rehearsal mode. 4) Set the zoom switch for maximum telephoto. 5) Observe space A indicated in Fig. 3-4-3. Adjust VR1 to produce the clock data indicated in the figure. 6) Set the zoom switch for maximum wide. 7) Observe space A indicated in Fig. 3-4-4. Adjust VR1 to produce the clock data indicated in the figure. **Note:** *Data are entered at the falling and rising edges of the clock waveform.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
3	Auto focus	• EE	• Subject at a distance of more than 2.4 m	• IC3 pin 64 (PHOTO TR IN)	• Infinite sensor	1) Shoot a subjcet in a distance of more than 2.4 m in the Rehearsal mode. 2) Attach ND filters to the lens to open the iris fully. 3) Set the FOCUS button to MANUAL. 4) Set the ZOOM switch to the TELE end. 5) By opetating the manual focus buttons (+ and –) to bring the subjcet into focus on the TV monitor. 6) Adjust the setscrew of the infinity sensor so that voltage at pin 64 of IC3 is 2.22 ± 0.05 V.

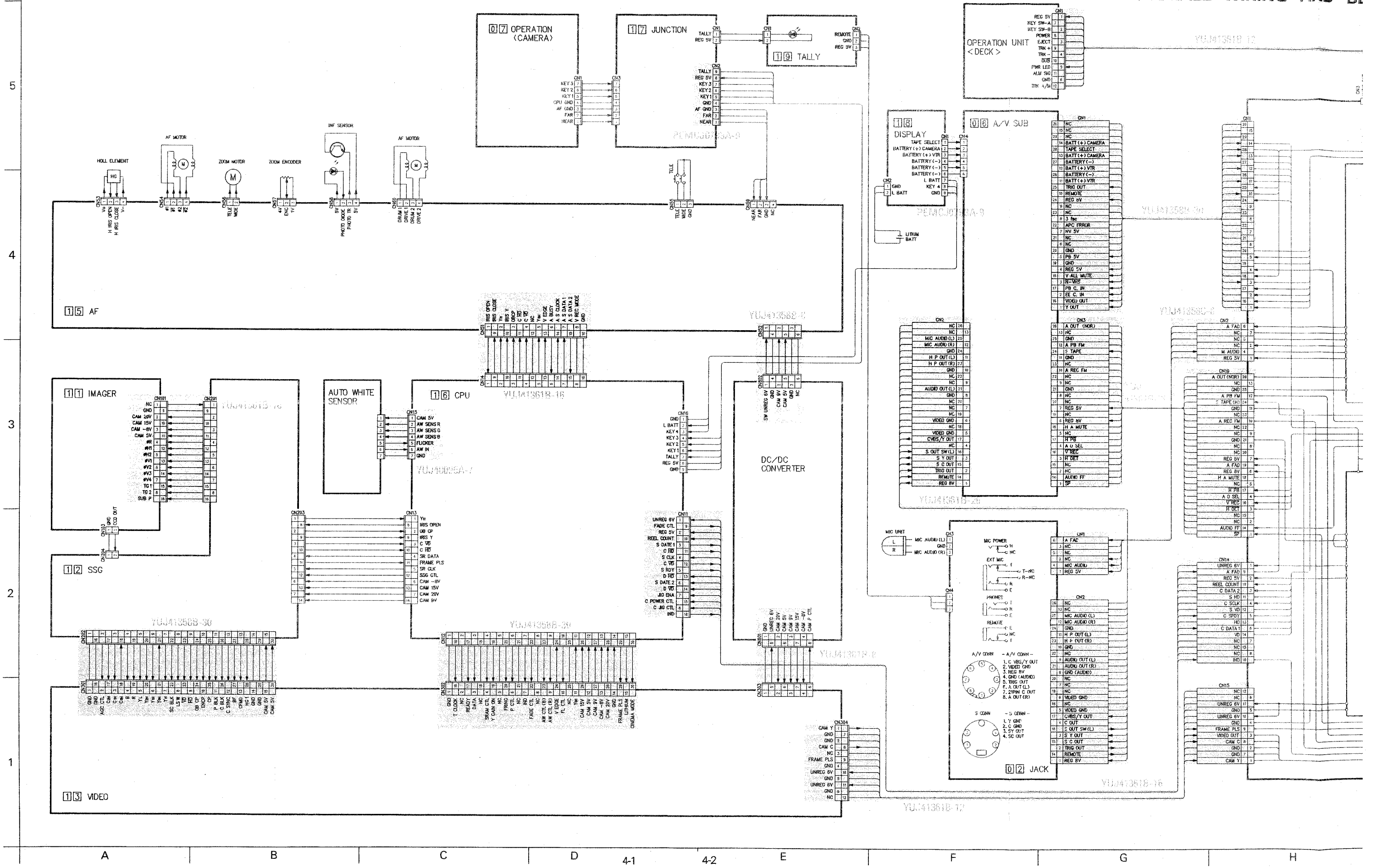
3.5 ELECTRONIC VIEWFINDER

Note: *Be most careful of high voltage at the anode of CRT, HV module, etc.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Horizontal sync.  CENTERING MAGNET FOCUS MAGNET CRT F.B.T H. HOLD 50 E.VF VR1 VR2 IC 1 VR4 VR3 V. SIZE BRIGHT CONTRAST **Fig. 3-5-1** Electronic viewfinder	• EE	• Gray scale	• Viewfinder	• VR2 (H. HOLD) 50 VF	1) Observing image in the viewfinder screen, turn VR2 fully clockwise to make the picture unstable. 2) Gradually return VR2 counterclockwise until the picture becomes stable. At that time, mark the VR's position for further reference. 3) In the same manner as the above steps 1) and 2), turn VR2 clockwise and return it to mark a point where the picture becomes stable again. 4) Finally set VR2 to the midpoint of the two markings.  (a) (b) • It is the correct setting position of VR2 that DC level of pin 12 of IC1 is 2.5 V (in Shuttle Search).
2	Vertical scanning	• EE	• Gray scale	• Viewfinder	• VR1 (V. SIZE) 50 VF	1) Observing image in the viewfinder, adjust VR1 for normal picture amplitude.
3	Centering	• EE	• Gray scale	• Viewfinder	• Centering magnet	1) Pick up the gray scale to locate it in the center of the TV monitor screen, and adjust the centering magnet so that the picked up gray scale pattern is positioned in the center of the viewfinder.
4	Focus	• EE	• Gray scale	• Viewfinder	• Focus magnet	1) Observing image in the viewfinder, adjust the focus magnet of the deflection yoke to obtain a clear image of the center of the gray scale.
5	Brightness	• EE	• Iris: Closed (with lens cap)	• Viewfinder	• VR4 (BRIGHT) 50 VF	1) Close the iris with the lens cap and adjust VR4 so that the CRT raster of the viewfinder is just barely visible.
6	Contrast	• EE	• Gray scale	• Viewfinder	• VR3 (CONT) 50 VF	1) Observing image in the viewfinder, adjust VR3 so that gradation of the gray scale becomes the best.

SECTION 4
OVERALL WIRING AND BL

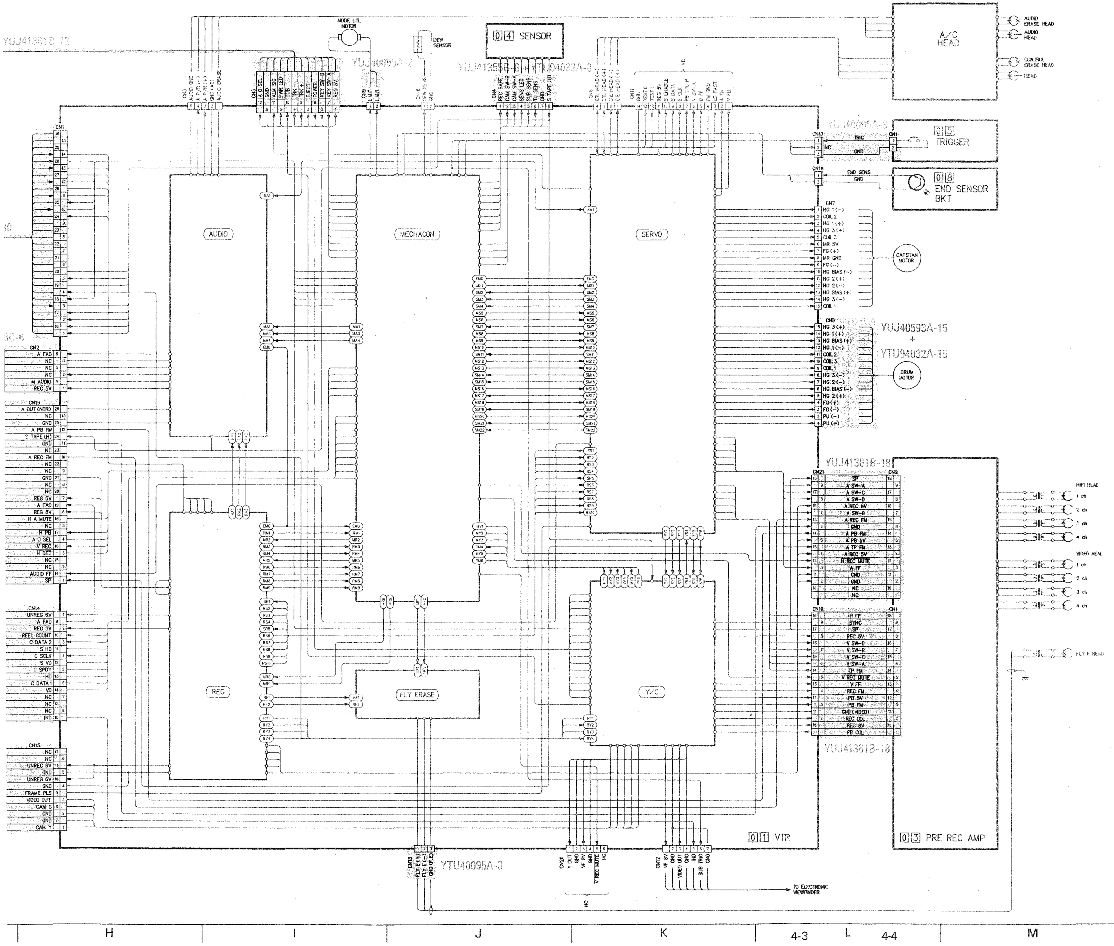
4.1 OVERALL WIRING



07 OPERATION (CAMERA)
17 JUNCTION
19 TALLY
OPERATION UNIT <DECK>
18 DISPLAY
06 A/V SUB
HOLL ELEMENT
AF MOTOR
ZOOM MOTOR
ZOOM ENCODER
INF SENSOR
AF MOTOR
TELE
15 AF
11 IMAGER
AUTO WHITE SENSOR
16 CPU
DC/DC CONVERTER
12 SSG
13 VIDEO
MIC UNIT
02 JACK
LITHIUM BATT
CN1
CN2
CN3
CN4
CN11
CN13
CN14
CN15
CN16
CN18
CN51
CN52
CN101
CN201
CN203
CN301
CN302
CN303
CN304
CN501
CN502
CN503
YUJ41361B-16
YUJ41358B-30
YUJ41358B-20
YUJ41361B-12
PEMC0073A-9
A
B
C
D
E
F
G
H
1
2
3
4
5
6

SECTION 4

LL WIRING AND BLOCK DIAGRAMS

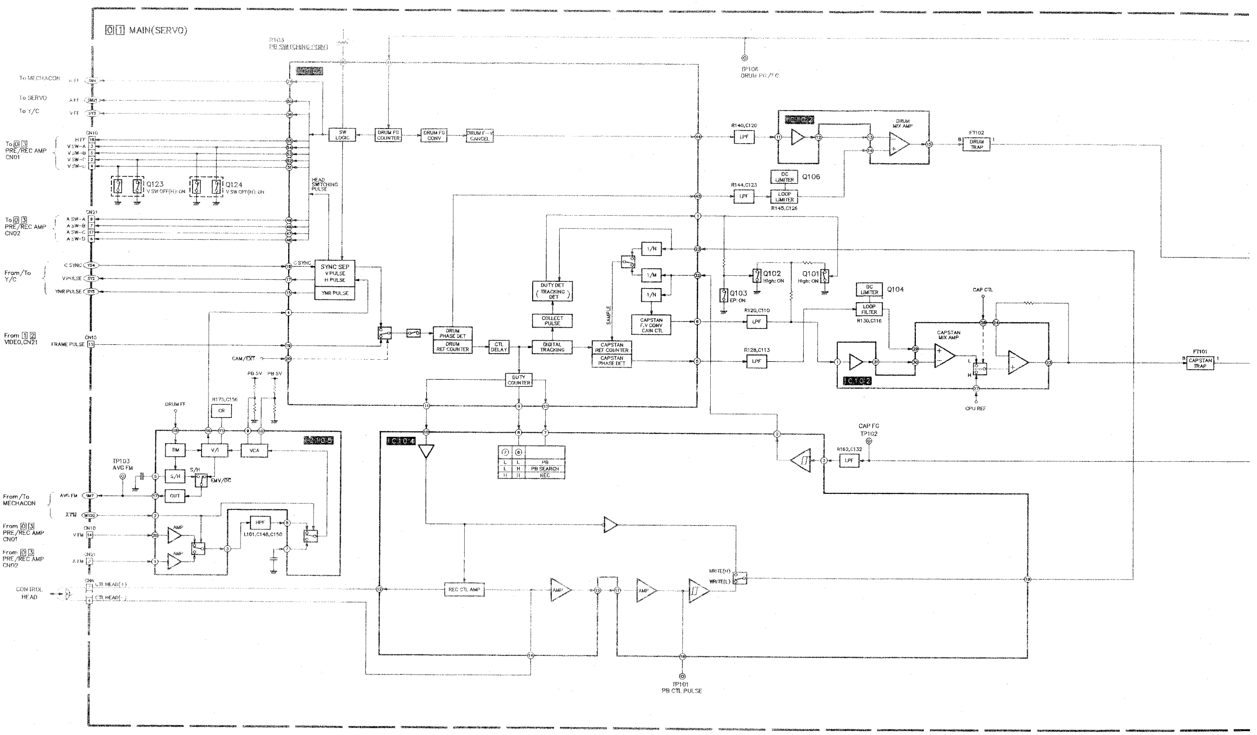

YUJ41361B-12
MODE CTL MOTOR
DEW SENSOR
YUJ40095A-2
YUJ41355B-8 + YTU94032A-8
04 SENSOR
CN3 AUDIO GND, A P/R (−), A P/R (+), GND (AE), AUDIO ERASE
CN5 A O SEL, GND, ALM SIG, PWR LED, DUB, TRK −, TRK +, EJECT, POWER, KEY SW-B, KEY SW-A, REG 5V
CN9 LM F, LM R
CN16 DEW SENS, GND
CN4 REC SAFE, CAM SW-B, CAM SW-A, SENS LED, SUP SENS, TU SENS, GND, S TAPE (H)
CN6 CTL HEAD (−), CTL HEAD (+), CE HEAD (−), CE HEAD (+)
CN11 GND, TEST 0, TEST 1, REG 5V, S ENABLE, S DATA, S CLK, PB CTL P, V SW-A, D FF, FM GND, LD FAST, A FM, V FM
NC
A/C HEAD
AUDIO ERASE HEAD
AUDIO HEAD
CONTROL ERASE HEAD
HEAD
YUJ40095A-3
CN17 TRIG, NC, GND
CN1
05 TRIGGER
CN18 END SENS, GND
08 END SENSOR BKT
CN7 HG 1 (−), COIL 2, HG 1 (+), HG 3 (+), COIL 3, MR 5V, FG (+), MR GND, FG (−), HG BIAS (−), HG 2 (+), HG 2 (−), HG BIAS (+), HG 3 (−), COIL 1
CAPSTAN MOTOR
CN8 HG 3 (+), HG 1 (+), HG BIAS (+), HG 1 (−), COIL 2, COIL 3, COIL 1, HG 3 (−), HG 2 (−), HG BIAS (−), HG 2 (+), FG (+), FG (−), PU (−), PU (+)
YUJ40593A-15 + YTU94032A-15
DRUM MOTOR
AUDIO
MECHACON
SERVO
REG
FLY ERASE
Y/C
CN1
CN2 A FAD, NC, NC, NC, M AUDIO, REG 5V
CN19 A OUT (NOR), NC, GND, A PB FM, S TAPE (H), GND, NC, A REC FM, NC, NC, GND, NC, NC, REG 5V, A FAD, REG 8V, H A MUTE, NC, H PB, A O SEL, V REC, H DET, NC, NC, AUDIO FF, SP
CN14 UNREG 6V, A FAD, REG 5V, REEL COUNT, C DATA 2, S HD, C SCLK, S VD, C SPDY, HD, C DATA 1, VD, NC, NC, NC, IND
CN15 NC, NC, UNREG 6V, GND, UNREG 6V, GND, FRAME PLS, VIDEO OUT, CAM C, GND, GND, CAM Y
YUJ41361B-18
CN21 / CN2 SP, A SW-A, A SW-C, A SW-D, A REC 8V, A SW-B, A REC FM, GND, A PB FM, A PB 5V, A TP FM, A REC 5V, H REC MUTE, A FF, GND, GND, NC, NC
CN10 / CN1 H FF, SYNC, SP, REC 5V, V SW-D, V SW-B, V SW-C, V SW-A, TP FM, V REC MUTE, V FF, REC FM, PB 5V, PB FM, GND (VIDEO), REC COL, REC 8V, PB COL
HIFI HEAD 1 ch, 2 ch, 3 ch, 4 ch
VIDEO HEAD 1 ch, 2 ch, 3 ch, 4 ch
FLY E HEAD
01 VTR
03 PRE REC AMP
CN13 FLY E (+), FLY E (−), GND (F.E)
YTU40095A-3
CN20 Y OUT, GND, VF 8V, GND, V REC MUTE, NC
NC
CN12 VF 8V, GND, VIDEO OUT, GND, SUB, TRIG, GND
TO ELECTRONIC VIEWFINDER
H
I
J
K
L
M
N
O

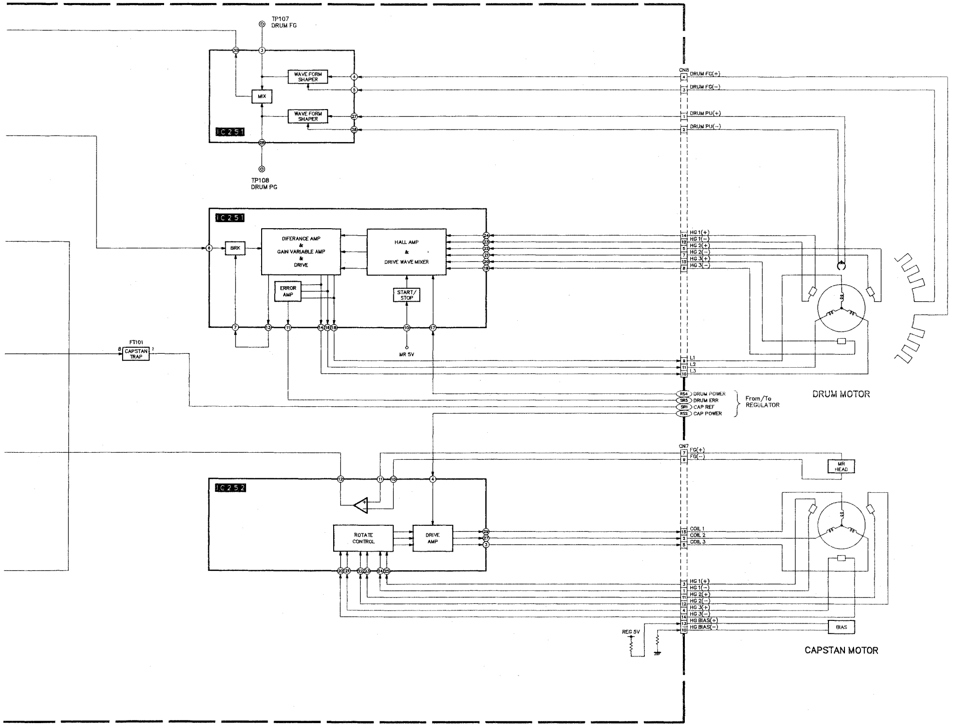
- **Patchcords**

  Patchcords are available for blue shaded portions of the overall wiring.

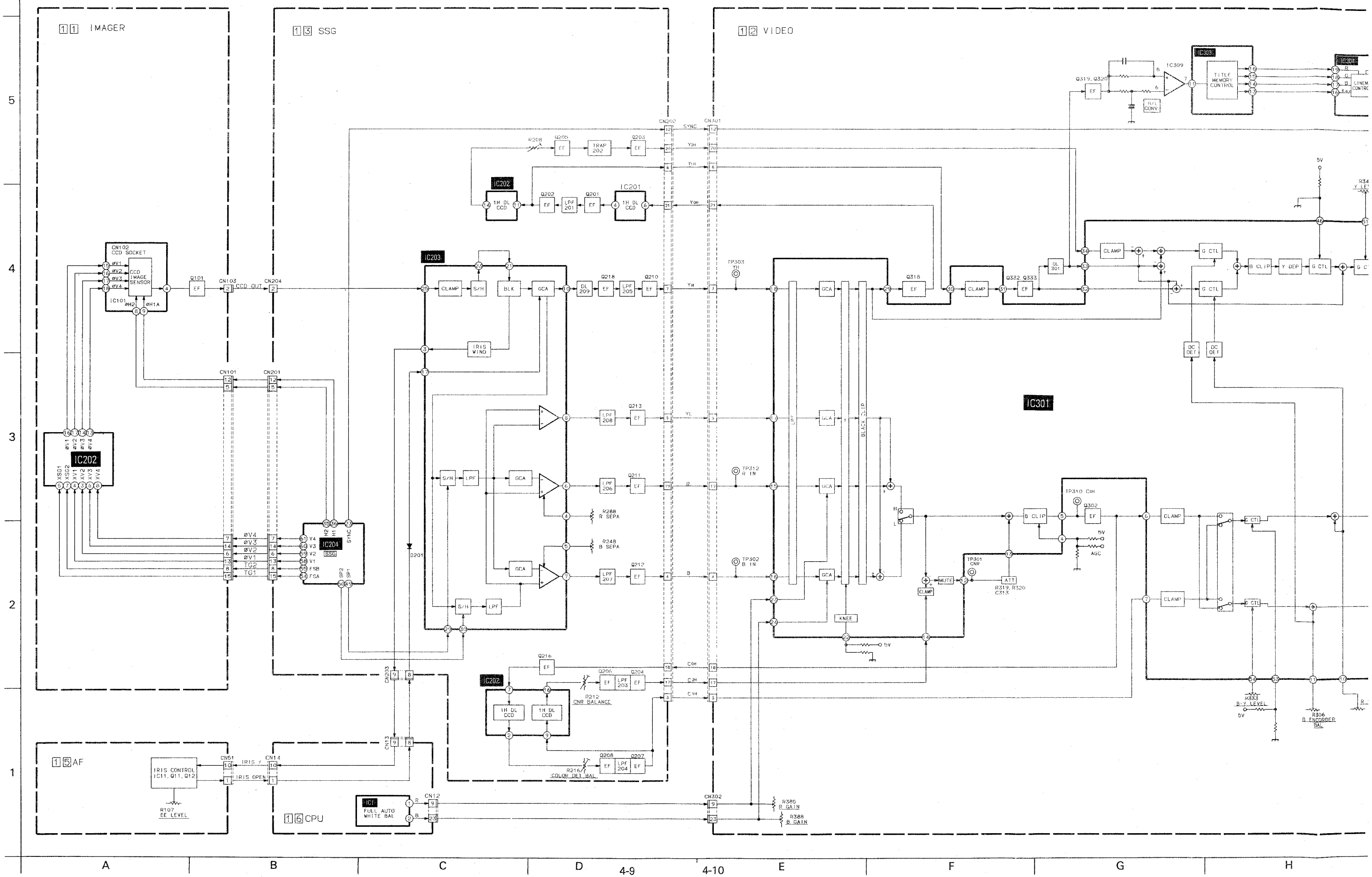
  Blue numbers indicate parts cord flags.

4.2 SERVO BLOCK DIAGRAM

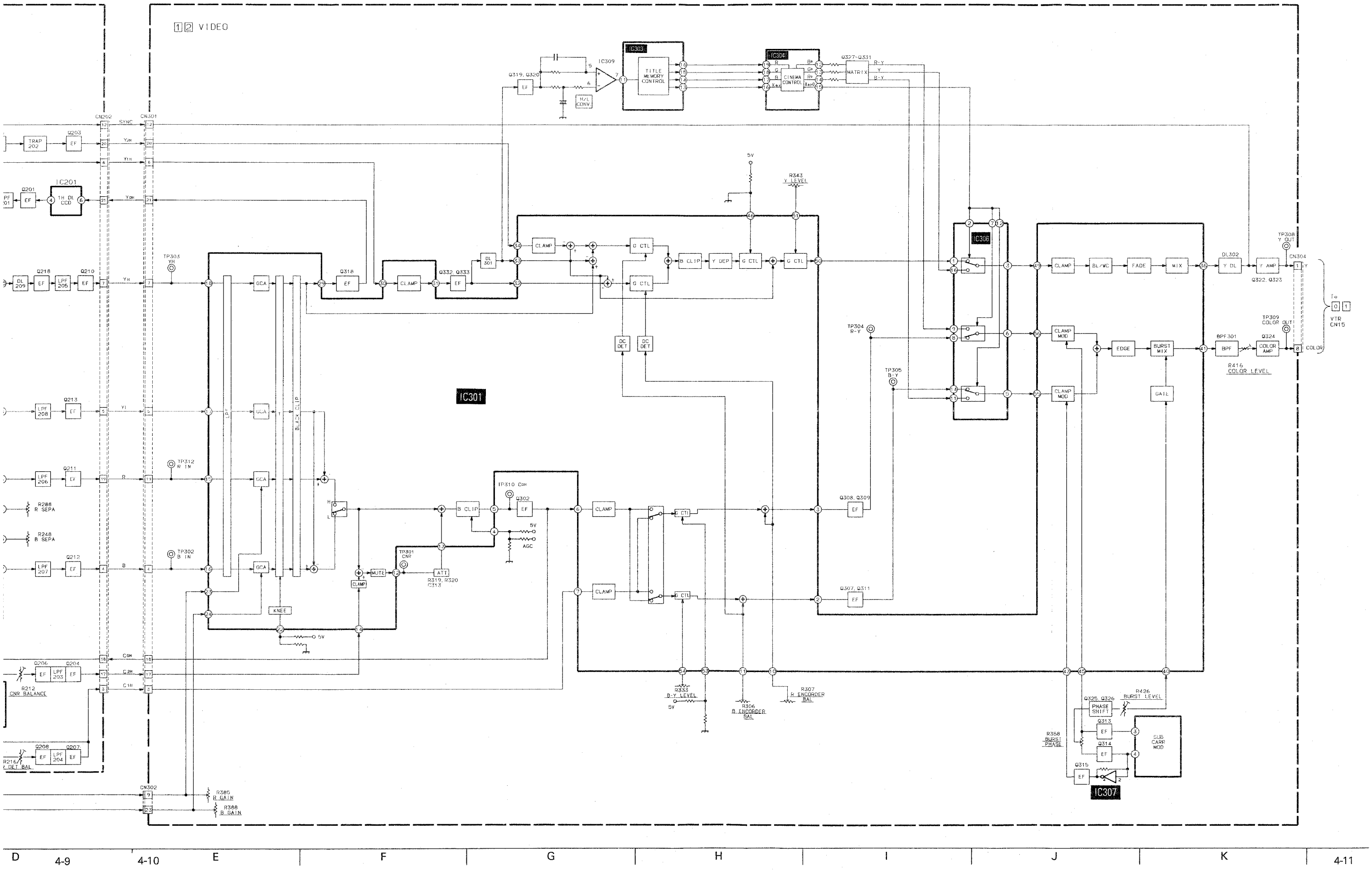

01 MAIN(SERVO)
R103
PB SWITCHING POINT
IC103
To MECHACON
To SERVO
To Y/C
A FF
V FF
SM4
SM21
SY3
To 03
PRE/REC AMP
CN01
CN10
H FF
V SW-A
V SW-B
V SW-C
V SW-D
Q123
V SW OFF(H): ON
Q124
V SW OFF(H): ON
To 03
PRE/REC AMP
CN02
CN21
A SW-A
A SW-B
A SW-C
A SW-D
From/To
Y/C
C SYNC
V PULSE
YNR PULSE
SY4
SY2
SY5
From 12
VIDEO,CN21
CN15
FRAME PULSE
CAM/EXT
SW
LOGIC
HEAD
SWITCHING
PULSE
SYNC SEP
V PULSE
H PULSE
YNR PULSE
DRUM FG
COUNTER
DRUM FG
CONV
DRUM F-V
CANCEL
DRUM
PHASE DET
DRUM
REF COUNTER
CTL
DELAY
DUTY DET
(TRACKING DET)
COLLECT
PULSE
DIGITAL
TRACKING
DUTY
COUNTER
SAMPLE
CAPSTAN
REF COUNTER
CAPSTAN
PHASE DET
1/N
1/M
1/N
CAPSTAN
F.V CONV
GAIN CTL
TP106
DRUM FG/FG
R140,C120
LPF
IC102
DRUM
MIX AMP
FT102
DRUM
TRAP
R144,C123
LPF
DC
LIMITER
LOOP
LIMITER
Q106
R145,C126
Q102
High: ON
Q101
High: ON
Q103
EP: ON
R120,C110
LPF
R128,C113
LPF
DC
LIMITER
Q104
LOOP
FILTER
R130,C116
CAP CTL
CAPSTAN
MIX AMP
IC102
CPU REF
FT101
CAPSTAN
TRAP
DRUM FF
R175,C156
CR
PB 5V
PB 5V
IC105
TM
V/I
VCA
S/H
S/H
EMV/DC
OUT
TP103
AVG FM
From/To
MECHACON
AVG FM
SM7
A FM
MS20
From 03
PRE/REC AMP
CN01
CN10
V FM
From 03
PRE/REC AMP
CN02
CN21
A FM
AMP
AMP
HPF
L101,C148,C150
CONTROL
HEAD
CN6
CTL HEAD(+)
CTL HEAD(-)
IC104
⑦ ⑧
L L PB
L H PB SEARCH
H H REC
REC CTL AMP
AMP
AMP
WRITE(H)
WRITE(L)
TP101
PB CTL PULSE
CAP FG
TP102
R162,C132
LPF


TP107
DRUM FG
WAVE FORM SHAPER
MIX
WAVE FORM SHAPER
IC251
TP108
DRUM PG
CN8
DRUM FG(+)
DRUM FG(−)
DRUM PU(+)
DRUM PU(−)
IC251
BRK
DIFERANCE AMP & GAIN VARIABLE AMP & DRIVE
HALL AMP & DRIVE WAVE MIXER
ERROR AMP
START/ STOP
MR 5V
HG 1(+)
HG 1(−)
HG 2(+)
HG 2(−)
HG 3(+)
HG 3(−)
L1
L2
L3
FT101
CAPSTAN TRAP
RS4 DRUM POWER
SR5 DRUM ERR
SR1 CAP REF
RS2 CAP POWER
From/To REGULATOR
DRUM MOTOR
CN7
FG(+)
FG(−)
MR HEAD
IC252
ROTATE CONTROL
DRIVE AMP
COIL 1
COIL 2
COIL 3
HG 1(+)
HG 1(−)
HG 2(+)
HG 2(−)
HG 3(+)
HG 3(−)
HG BIAS(+)
HG BIAS(−)
REG 5V
BIAS
CAPSTAN MOTOR

4.3 CAMERA BLOCK DIAGRAM

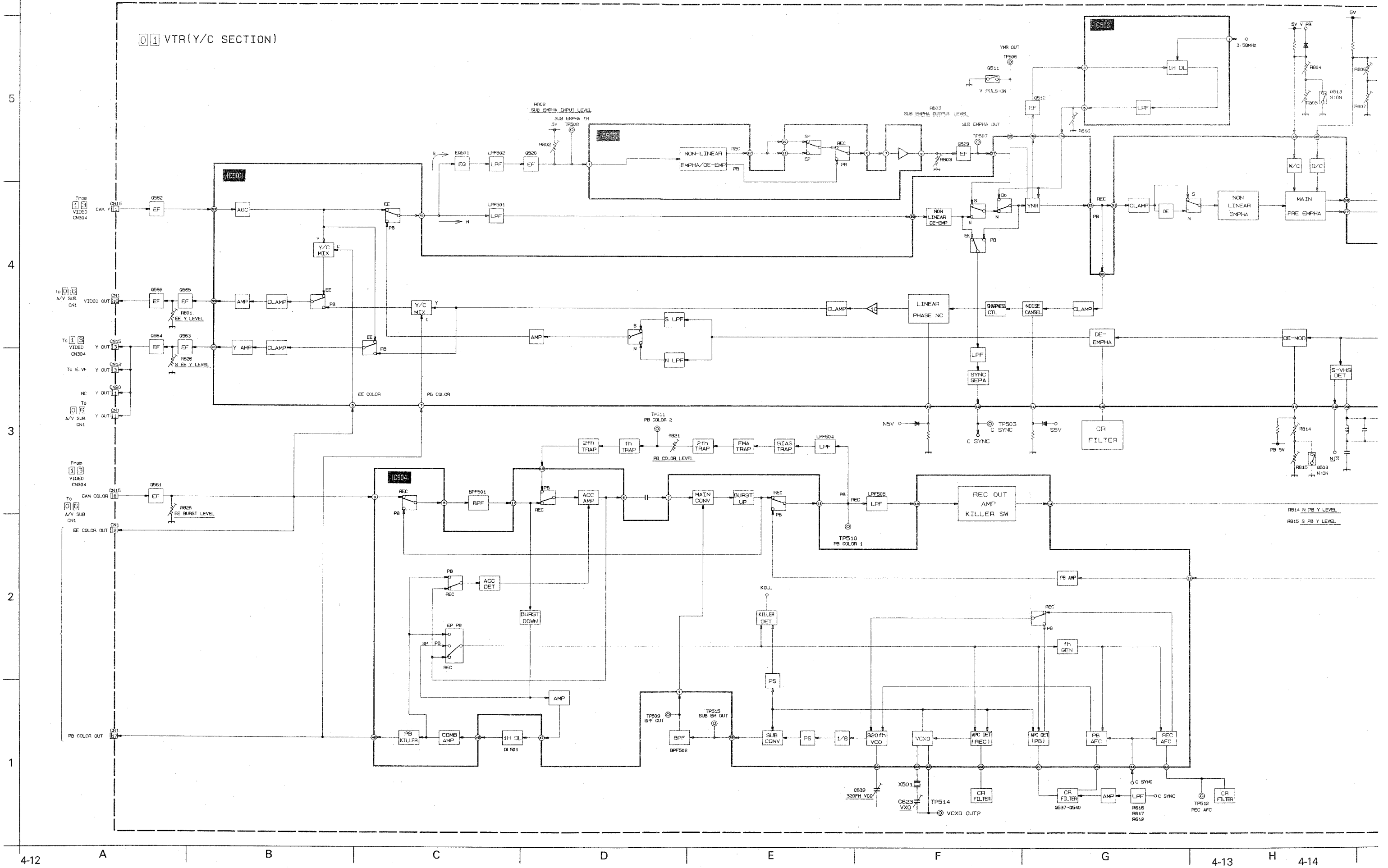


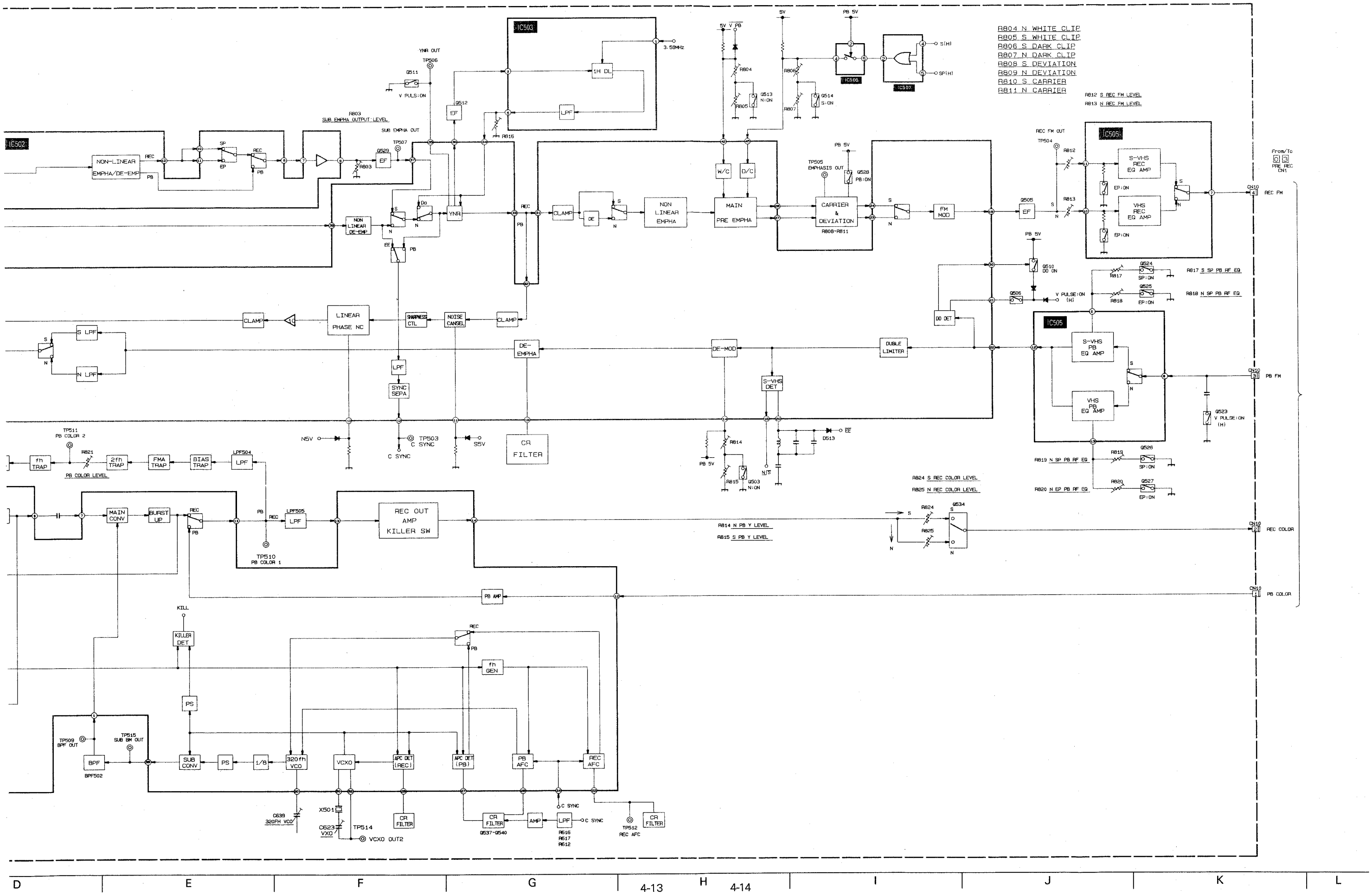
11 IMAGER
13 SSG
12 VIDEO
15 AF
16 CPU
CN102 CCD SOCKET
CCD IMAGE SENSOR
IC101
IC202
IC204 SSG
IC203
IC201
IC202
IC301
IC303
IC304
IC309
IC1 FULL AUTO WHITE BAL
IRIS CONTROL IC11, Q11, Q12
R107 EE LEVEL
Q101 EF
CN103
CN204
CCD OUT
CN101
CN201
CN200
CN301
CN203
CN13
CN14
CN51
CN12
CN302
ØV4
ØV3
ØV2
ØV1
TG2
TG1
SYNC
Y2H
Y1H
Y0H
YH
YL
R
B
C0H
C2H
C1H
IRIS Y
IRIS OPEN
CLAMP
S/H
BLK
GCA
LPF
IRIS WIND
1H DL CCD
TRAP 202
DL 209
LPF 205
LPF 208
LPF 206
LPF 207
LPF 201
LPF 203
LPF 204
R208
R288 R SEPA
R248 B SEPA
R212 CNR BALANCE
R216 COLOR DET BAL
D201
TP303 YH
TP312 R IN
TP302 B IN
TP310 C0H
TP301 CNR
BLACK CLIP
KNEE
MUTE
ATT
R319, R320 C313
B CLIP
AGC
DC DET
G CTL
Y DEP
DL 301
TITLE MEMORY CONTROL
N/L CONV
Q319, Q320
R333 B-Y LEVEL
R306 B ENCORDER BAL
R385 R GAIN
R388 B GAIN
5V
A
B
C
D
E
F
G
H
1
2
3
4
5
6



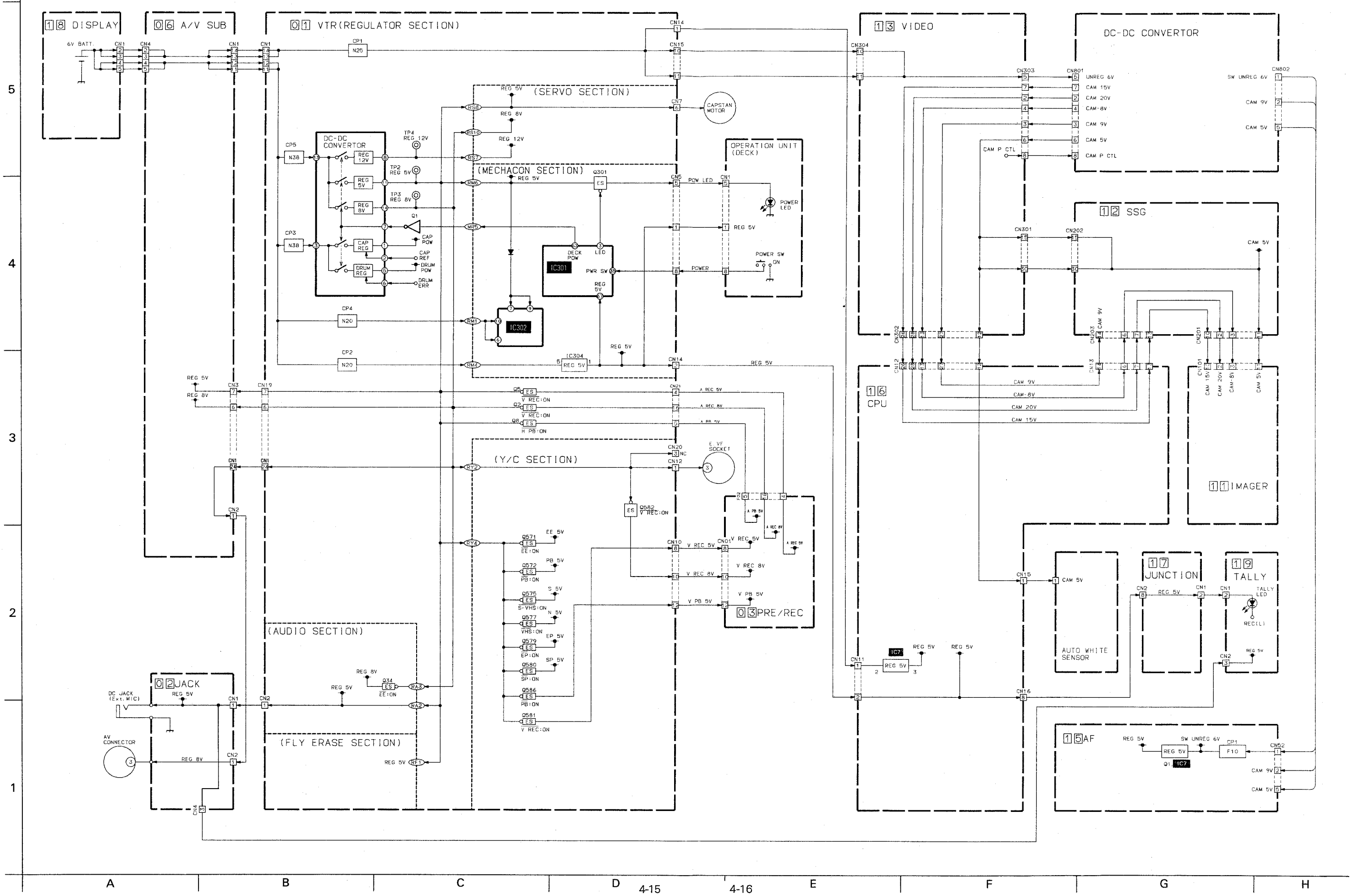
1 2 VIDEO
IC303
TITLE MEMORY CONTROL
IC304
CINEMA CONTROL
Q327~Q331
MATRIX
R-Y
Y
B-Y
IC309
Q319, Q320
EF
H/L CONV
CN202
CN301
SYNC
TRAP 202
Q203
Y2H
Y1H
IC201
Q201
1H DL CCD
Y0H
TP303 YH
Q218
Q210
DL 209
LPF 205
YH
Q318
CLAMP
Q332, Q333
DL 301
5V
R343 Y LEVEL
G CTL
B CLIP
Y DEP
DC DET
GCA
LPF
BLACK CLIP
KNEE
IC301
Q213
LPF 208
YI
TP312 R IN
Q211
LPF 206
R
R288 R SEPA
R248 B SEPA
TP302 B IN
Q212
LPF 207
B
TP310 COH
Q302
AGC
TP301 CNR
ATT
R319, R320 C313
MUTE
Q206
Q204
LPF 203
COH
C2H
C1H
R212 CNR BALANCE
Q208
Q207
LPF 204
R216 DET BAL
CN302
R385 R GAIN
R388 B GAIN
R333 B-Y LEVEL
R306 B ENCORDER BAL
R307 R ENCORDER BAL
TP304 R-Y
TP305 B-Y
Q308, Q309
Q307, Q311
IC306
BL/WC
FADE
MIX
CLAMP MOD
EDGE
BURST MIX
GATE
DL302
Y DL
Y AMP
Q322, Q323
TP308 Y OUT
CN304
Y
TP309 COLOR OUT
BPF301
BPF
Q324
COLOR AMP
COLOR
R416 COLOR LEVEL
To 0 1 VTR CN15
Q325, Q326
PHASE SHIFT
R426 BURST LEVEL
Q313
Q314
R358 BURST PHASE
SUB CARR MOD
Q315
IC307
D
4-9
4-10
E
F
G
H
I
J
K
4-11

4.4 Y/C BLOCK DIAGRAM


01 VTR(Y/C SECTION)
IC501
IC502
IC503
IC504
From 13 VIDEO CN304
CAM Y
CN15
Q562
EF
AGC
EE
PB
Y/C MIX
To 06 A/V SUB CN1
VIDEO OUT
Q566
Q565
R801 EE Y LEVEL
AMP
CLAMP
To 13 VIDEO CN304
Y OUT
Q564
Q563
R826 S EE Y LEVEL
Y AMP
To E.VF
CN12
NC
CN20
To 06 A/V SUB CN1
EE COLOR
PB COLOR
S LPF
N LPF
EQ501
EQ
LPF502
LPF
Q520
R802 SUB EMPHA INPUT LEVEL
SUB EMPHA IN TP508
5V
NON-LINEAR EMPHA/DE-EMP
REC
SP
EP
LPF501
R803 SUB EMPHA OUTPUT LEVEL
SUB EMPHA OUT
TP507
Q529
YNR OUT
TP506
Q511
V PULSION
Q512
1H DL
3.58MHz
R816
NON LINEAR DE-EMP
YNR
CLAMP
DE
NON LINEAR EMPHA
MAIN PRE EMPHA
W/C
D/C
5V V PB
5V
R804
R805
Q513 N/ON
R806
R807
LINEAR PHASE NC
SHARPNESS CTL
NOISE CANSEL
DE-EMPHA
DE-MOD
S-VHS DET
LPF
SYNC SEPA
N5V
TP503 C SYNC
C SYNC
S5V
CR FILTER
R814
PB 5V
R815
Q503 N/ON
NJ3
R814 N PB Y LEVEL
R815 S PB Y LEVEL
TP511 PB COLOR 2
R821
PB COLOR LEVEL
2fh TRAP
fh TRAP
FMA TRAP
BIAS TRAP
LPF504
From 13 VIDEO CN304
To 06 A/V SUB CN1
CAM COLOR
Q561
R828 EE BURST LEVEL
EE COLOR OUT
BPF501
BPF
ACC AMP
MAIN CONV
BURST UP
TP510 PB COLOR 1
LPF505
REC OUT AMP KILLER SW
PB AMP
ACC DET
BURST DOWN
KILL
KILLER DET
PS
AMP
PB KILLER
COMB AMP
1H DL
DL501
PB COLOR OUT
TP509 BPF OUT
TP515 SUB BM OUT
BPF502
SUB CONV
1/8
320fh VCO
VCXO
APC DET (REC)
APC DET (PB)
fh GEN
PB AFC
REC AFC
C639 320FH VCO
X501
C623 VXO
TP514
VCXO OUT2
CR FILTER
Q537-Q540
R616 R617 R612
TP512 REC AFC
A
B
C
D
E
F
G
H
1
2
3
4
5
6


IC502
IC503
IC505
IC506
IC507
IC505
R804 N WHITE CLIP
R805 S WHITE CLIP
R806 S DARK CLIP
R807 N DARK CLIP
R808 S DEVIATION
R809 N DEVIATION
R810 S CARRIER
R811 N CARRIER
R812 S REC FM LEVEL
R813 N REC FM LEVEL
NON-LINEAR EMPHA/DE-EMP
REC
PB
SP
EP
R803 SUB EMPHA OUTPUT LEVEL
SUB EMPHA OUT
TP507
Q529
EF
YNR OUT
TP506
Q511
V PULS:ON
Q512
1H DL
LPF
3.58MHz
R816
NON LINEAR DE-EMP
Do
YNR
EE
CLAMP
DE
NON LINEAR EMPHA
W/C
D/C
MAIN PRE EMPHA
5V
V PB
PB 5V
R804
R805
R806
R807
Q513 N:ON
Q514 S:ON
S(H)
SP(H)
TP505 EMPHASIS OUT
Q528 PB:ON
CARRIER & DEVIATION
R808-R811
FM MOD
REC FM OUT
TP504
Q505
R812
R813
S-VHS REC EQ AMP
VHS REC EQ AMP
EP:ON
From/To
03 PRE REC CN1
CN10
REC FM
Q510 DO ON
V PULSE:ON (H)
Q506
Q524
Q525
R817
R818
SP:ON
EP:ON
R817 S SP PB RF EQ
R818 N SP PB RF EQ
DO DET
LINEAR PHASE NC
SHARPNESS CTL
NOISE CANSEL
S LPF
N LPF
DE-EMPHA
DE-MOD
DUBLE LIMITER
S-VHS PB EQ AMP
VHS PB EQ AMP
PB FM
Q523 V PULSE:ON (H)
S-VHS DET
LPF
SYNC SEPA
CR FILTER
N5V
S5V
TP503 C SYNC
C SYNC
R814
R815
Q503 N:ON
NJS
D513
EE
R819
R820
Q526
Q527
R819 N SP PB RF EQ
R820 N EP PB RF EQ
TP511 PB COLOR 2
R821
PB COLOR LEVEL
fh TRAP
2fh TRAP
FMA TRAP
BIAS TRAP
LPF504
LPF505
MAIN CONV
BURST UP
TP510 PB COLOR 1
REC OUT AMP KILLER SW
R824 S REC COLOR LEVEL
R825 N REC COLOR LEVEL
R814 N PB Y LEVEL
R815 S PB Y LEVEL
Q534
REC COLOR
PB AMP
PB COLOR
KILL
KILLER DET
fh GEN
PS
TP509 BPF OUT
TP515 SUB BM OUT
BPF
BPF502
SUB CONV
1/8
320fh VCO
VCXO
APC DET (REC)
APC DET (PB)
PB AFC
REC AFC
C639 320FH VCO
X501
C623 VXO
TP514
VCXO OUT2
CR FILTER
Q537-Q540
AMP
R616 R617 R612
TP512 REC AFC
D
E
F
G
H
I
J
K
L

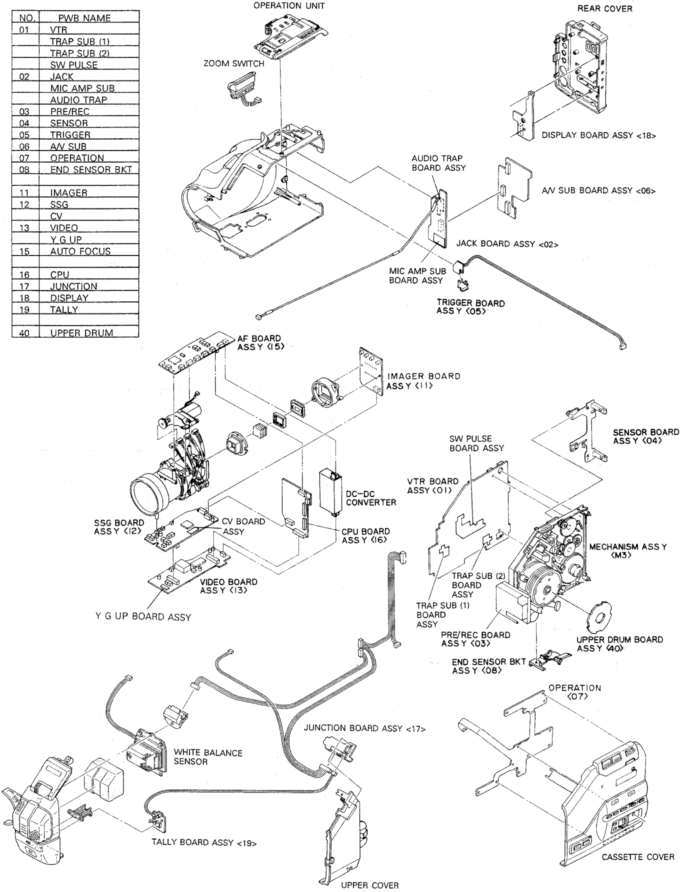
4.5 POWER SYSTEM BLOCK DIAGRAM


18 DISPLAY
6V BATT.
06 A/V SUB
01 VTR(REGULATOR SECTION)
13 VIDEO
DC-DC CONVERTOR
(SERVO SECTION)
CAPSTAN MOTOR
DC-DC CONVERTOR
REG 12V
REG 5V
REG 8V
CAP REG
DRUM REG
TP4 REG 12V
TP2 REG 5V
TP3 REG 8V
CAP POW
CAP REF
DRUM POW
DRUM ERR
(MECHACON SECTION)
Q301
IC301
IC302
IC304
DECK POW
LED
PWR SW
OPERATION UNIT (DECK)
POWER LED
POWER SW ON
POW LED
POWER
UNREG 6V
CAM 15V
CAM 20V
CAM-8V
CAM 9V
CAM 5V
CAM P CTL
SW UNREG 6V
12 SSG
16 CPU
11 IMAGER
(Y/C SECTION)
E.VF SOCKET
V REC:ON
H PB:ON
A REC 5V
A REC 8V
A PB 5V
EE 5V
PB 5V
S 5V
N 5V
EP 5V
SP 5V
EE:ON
PB:ON
S-VHS:ON
VHS:ON
EP:ON
SP:ON
V REC 5V
V REC 8V
V PB 5V
03 PRE/REC
(AUDIO SECTION)
(FLY ERASE SECTION)
02 JACK
DC JACK (Ext.MIC)
AV CONNECTOR
AUTO WHITE SENSOR
17 JUNCTION
19 TALLY
TALLY LED
REC(L)
15 AF
IC7
REG 5V
F10
6
5
4
3
2
1
A
B
C
D
E
F
G
H

SECTION 5
DIAGRAMS AND CIRCUIT BOARDS

5.1 CIRCUIT BOARD LOCATIONS

NO.	PWB NAME
01	VTR
	TRAP SUB (1)
	TRAP SUB (2)
	SW PULSE
02	JACK
	MIC AMP SUB
	AUDIO TRAP
03	PRE/REC
04	SENSOR
05	TRIGGER
06	A/V SUB
07	OPERATION
08	END SENSOR BKT
11	IMAGER
12	SSG
	CV
13	VIDEO
	Y G UP
15	AUTO FOCUS
16	CPU
17	JUNCTION
18	DISPLAY
19	TALLY
40	UPPER DRUM


OPERATION UNIT
REAR COVER
ZOOM SWITCH
DISPLAY BOARD ASSY <18>
AUDIO TRAP BOARD ASSY
A/V SUB BOARD ASSY <06>
JACK BOARD ASSY <02>
MIC AMP SUB BOARD ASSY
TRIGGER BOARD ASSY <05>
AF BOARD ASSY <15>
IMAGER BOARD ASSY <11>
SENSOR BOARD ASSY <04>
SW PULSE BOARD ASSY
VTR BOARD ASSY <01>
DC-DC CONVERTER
SSG BOARD ASSY <12>
CV BOARD ASSY
CPU BOARD ASSY <16>
MECHANISM ASSY <M3>
VIDEO BOARD ASSY <13>
TRAP SUB (2) BOARD ASSY
Y G UP BOARD ASSY
TRAP SUB (1) BOARD ASSY
PRE/REC BOARD ASSY <03>
UPPER DRUM BOARD ASSY <40>
END SENSOR BKT ASSY <08>
OPERATION <07>
JUNCTION BOARD ASSY <17>
WHITE BALANCE SENSOR
TALLY BOARD ASSY <19>
CASSETTE COVER
UPPER COVER

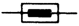
5.2 SCHEMATIC DIAGRAM NOTES

1. ▨ parts are safety related parts. When replacing them, be sure to use the specified parts.

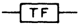
2. Unit indications

No units: [Ω]	No units: [μF]	No units: [μH]
K: [kΩ]	P: [pF]	m: [mH]
M: [MΩ]		

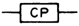
Thermistor



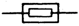
Thermal Fuse

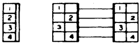


Circuit Protector

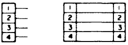


Posistor

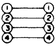




: Connector



: Board in connector



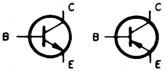
: Direct connection

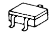
COUNT UP : Active only at high.

$\overline{\text{COUNT DOWN}}$: Active only at low.

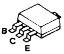
(VS) : Connected pattern in the board.
(MS) Abbreviations
(SM) V : Video M : Mechacon
S : Servo A : Audio
VS : Signal flow from video to servo.

3. Chip transistor

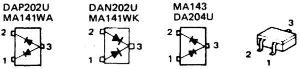




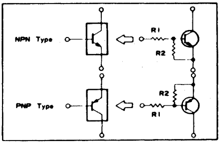
(Standard type)



4. Chip diode


DAP202U
MA141WA
2
1
3
DAN202U
MA141WK
2
1
3
MA143
DA204U
2
1
3
3
2
1

5. Digital transistor


NPN Type
R1
R2
PNP Type
R2
R1

RESISTOR VALUES

JUNCTION	Type	R1 (kΩ)	R2 (kΩ)
PNP	DTA124EU	22	22
NPN	DTC144EU	47	47
	DTC124EU	22	22

Note: The digital transistor includes built in resistors.
It features small size and high reliability.
Both PNP and NPN types are available.

USES: INVERTER, INTERFACE, DRIVER CIRCUITS.

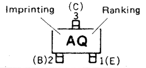
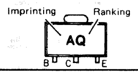
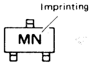
6. Definition of the surface and the back of circuit board diagrams

Front : Side on which discrete parts are assembled
Rear : Side on which chip parts are assembled

5.3 REPLACING SUBMINIATURE "CHIP" PARTS

1. Some resistors, shorting jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
2. Additional compactness is achieved by using subminiature chip parts for certain circuit elements. When replacing these parts, note the cautions outlined below.
3. Chip transistors and diodes used in this model are outlined below.
4 Refer to parts list for correct part numbers.

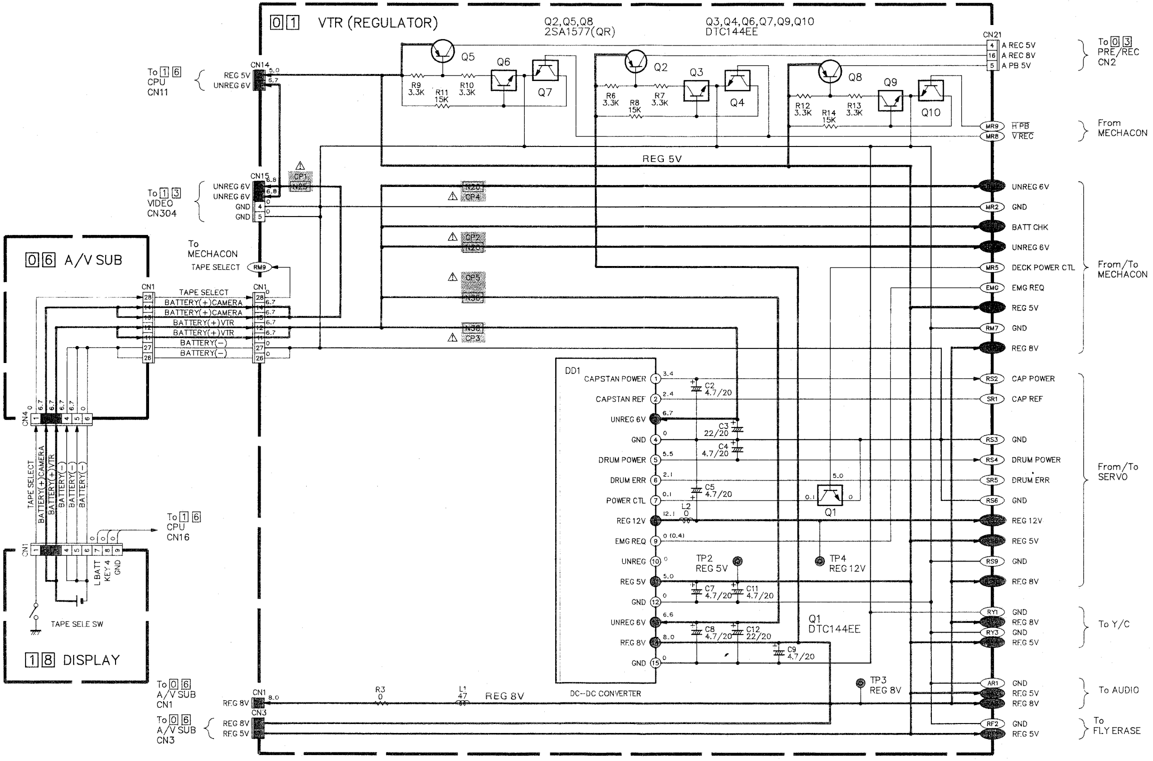
- **Chip transistor and chip diode imprinting**

Transistors				Diodes	
Type	**Imprinting**	**Type**	**Imprinting**	**Type**	**Imprinting**
DTA124EU	15	2SB798	DM, DL, DK	DAN202U	N
DTA144EU	16	2SC2412K(S)	BS	DAP202K	P
DTC124EU	25	2SC3931	UB~UD	DAP202U	P
DTC124XU	45	2SC3936(BC)	KB, KC	DA204U	K
DTC144EU	26	2SC4081	BQ~BS	FMN1	N1
FMC2	C2	2SC4097(QR)	CQ, CR	IMN10	N10
FMG1	G1	2SC4098(PQ)	AP, AQ	MA141WA	MN
FMG2	G2	2SC4099(NP)	JN, JP	MA141WK	MT
FMQ1	Q1	2SC4176	B33, B34, B35	MA143	MC
FMS2	S2	2SC4177(56)	L5, L6	MA3075H	7.5H
FMU1	U1	2SC4178(34)	F13, F14	MA704	MIK
FMW1	W1	2SC4181	L17, L18	MA714	MIP
FMW3	W3	2SD1819	YR~YS	MA716	M1U
FMY1	Y1	2SJ146	4D	RB451F	3C
2SA1036K(QR)	HQ ~ HR	2SK198P,Q	10P, 10Q	RD7.5M-T1B2	752
2SA1532(BC)	EB, EC	2SK620	3N	RD7.5M-T2B2	752
2SA1576	FQ ~ FS	2SK665	30	RLZ5.6B	753
2SA1577	HQ ~ HS	3SK179	V03	RLZ8.2B	822
2SA1610	Y33, Y34			RD7.5MB3	125
2SA1611(56)	M5, M6			RD8.2MB2	165
2SB1218(RS)	AR, AS				
2SB624	BV4				
					

5.4 REGULATOR SCHEMATIC DIAGRAM

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

● Voltage
REC : Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.
*Where voltage differ between recording and palyback, the voltage during playback is shown in parenthesis.


01 VTR (REGULATOR)
Q2,Q5,Q8
2SA1577(QR)
Q3,Q4,Q6,Q7,Q9,Q10
DTC144EE
Q5
Q6
Q7
R9 3.3K
R11 15K
R10 3.3K
Q2
Q3
Q4
R6 3.3K
R8 15K
R7 3.3K
Q8
Q9
Q10
R12 3.3K
R14 15K
R13 3.3K
CN21
A REC 5V
A REC 8V
A PB 5V
To 03 PRE/REC CN2
MR9 H PB
MR8 V REC
From MECHACON
REG 5V
To 16 CPU CN11
CN14
REG 5V
UNREG 6V
To 13 VIDEO CN304
CN15
UNREG 6V
UNREG 6V
GND
GND
CP1
N25
N20
CP4
CP2
N20
CP5
N30
N30
CP3
UNREG 6V
MR2 GND
BATT CHK
UNREG 6V
MR5 DECK POWER CTL
EMG EMG REQ
REG 5V
RM7 GND
REG 8V
From/To MECHACON
06 A/V SUB
To MECHACON
TAPE SELECT
RM9
CN1
TAPE SELECT
BATTERY(+)CAMERA
BATTERY(+)CAMERA
BATTERY(+)VTR
BATTERY(+)VTR
BATTERY(−)
BATTERY(−)
CN4
TAPE SELECT
BATTERY(+)CAMERA
BATTERY(+)VTR
BATTERY(−)
BATTERY(−)
BATTERY(−)
To 16 CPU CN16
L BATT
KEY 4
GND
TAPE SELE SW
18 DISPLAY
DD1
CAPSTAN POWER
CAPSTAN REF
UNREG 6V
GND
DRUM POWER
DRUM ERR
POWER CTL
REG 12V
EMG REQ
UNREG
REG 5V
GND
UNREG 6V
REG 8V
GND
DC-DC CONVERTER
C2 4.7/20
C3 22/20
C4 4.7/20
C5 4.7/20
L2 0
TP2 REG 5V
TP4 REG 12V
C7 4.7/20
C11 4.7/20
C8 4.7/20
C12 22/20
C9 4.7/20
Q1
Q1 DTC144EE
TP3 REG 8V
RS2 CAP POWER
SR1 CAP REF
RS3 GND
RS4 DRUM POWER
SR5 DRUM ERR
RS6 GND
REG 12V
REG 5V
RS9 GND
REG 8V
From/To SERVO
RY1 GND
REG 8V
RY3 GND
REG 5V
To Y/C
AR1 GND
REG 5V
REG 8V
To AUDIO
RF2 GND
REG 5V
To FLY ERASE
To 06 A/V SUB CN1
CN1 REG 8V
R3 0
L1 47
REG 8V
To 06 A/V SUB CN3
CN3
REG 8V
REG 5V

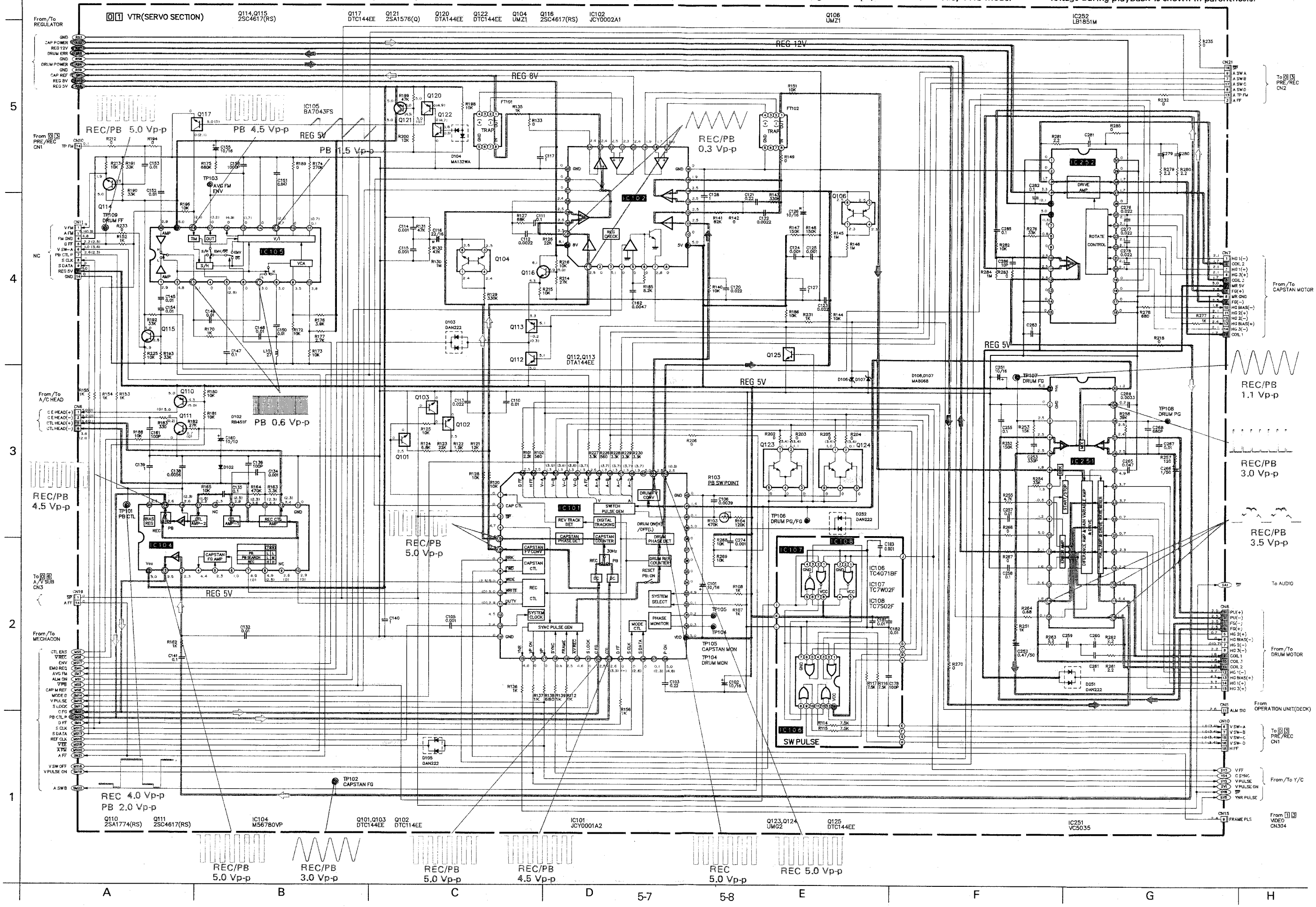
5.5 SERVO SCHEMATIC DIAGRAM

● Waveform
REC : Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.

● SIGNAL PATH
DRUM SERVO
CAPSTAN SERVO

● Voltage
REC : Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.

*Where voltage differ between recording and palyback, the voltage during playback is shown in parenthesis.

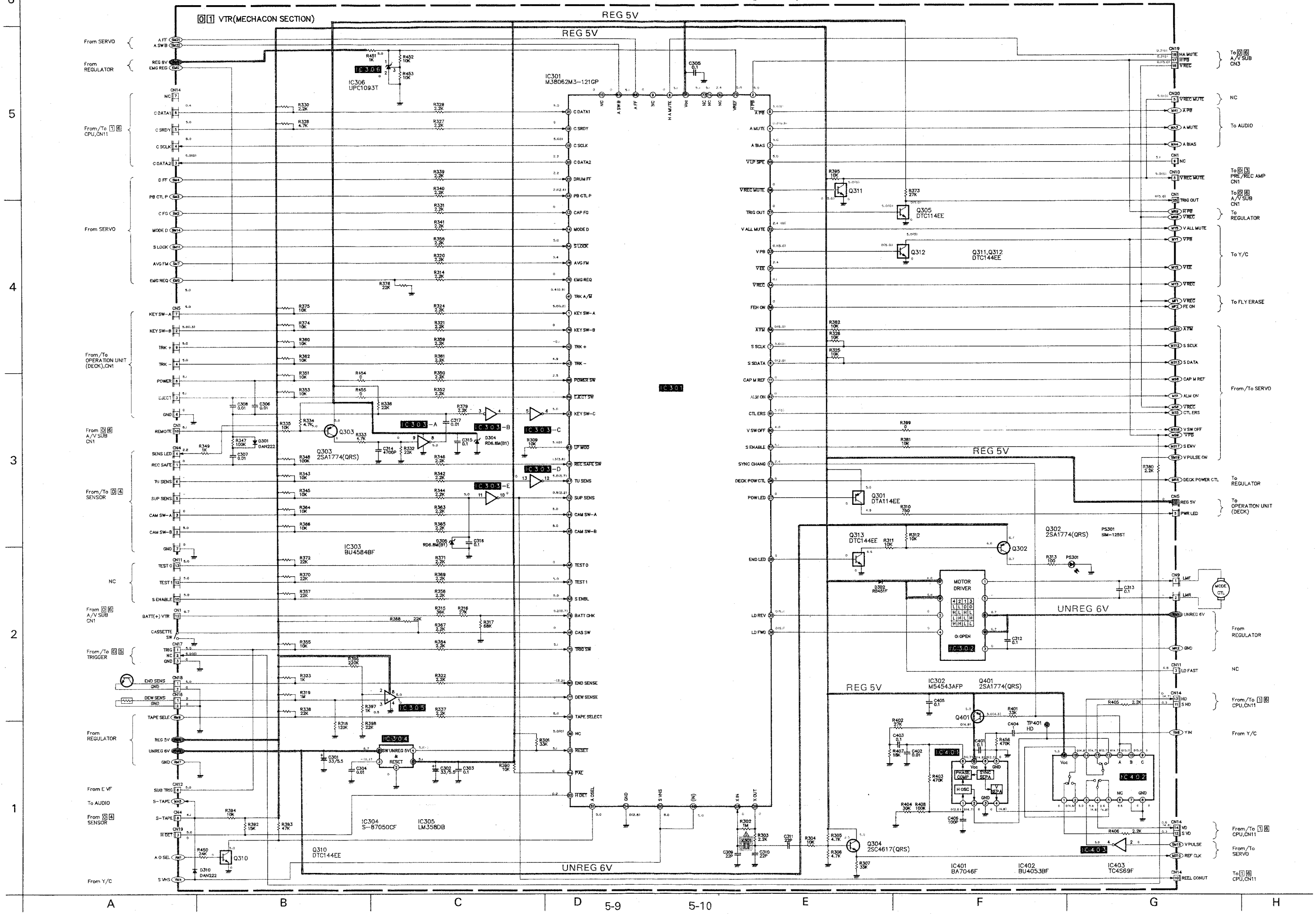

0 1 VTR(SERVO SECTION)
Q114,Q115 2SC4617(RS)
Q117 DTC144EE
Q121 2SA1576(Q)
Q120 DTA144EE
Q122 DTC144EE
Q104 UMZ1
Q116 2SC4617(RS)
IC102 JCY0002A1
Q106 UMZ1
IC252 LB1851M
From/To REGULATOR
REG 12V
REG 8V
REG 5V
IC105 BA7043FS
REC/PB 5.0 Vp-p
PB 4.5 Vp-p
PB 1.5 Vp-p
REC/PB 0.3 Vp-p
From 0 3 PRE/REC CN1
To 0 3 PRE/REC CN2
From/To CAPSTAN MOTOR
From/To A/C HEAD
PB 0.6 Vp-p
REC/PB 1.1 Vp-p
REC/PB 3.0 Vp-p
REC/PB 3.5 Vp-p
REC/PB 4.5 Vp-p
REC/PB 5.0 Vp-p
IC101
IC104
IC107
IC108
IC106 TC4071BF
IC107 TC7W02F
IC108 TC7S02F
IC251
SW PULSE
To 0 6 A/V SUB CN3
To AUDIO
From/To MECHACON
From/To DRUM MOTOR
From OPERATION UNIT(DECK)
To 0 3 PRE/REC CN1
From/To Y/C
From 1 3 VIDEO CN304
REC 4.0 Vp-p
PB 2.0 Vp-p
Q110 2SA1774(RS)
Q111 2SC4617(RS)
IC104 M56780VP
Q101,Q103 DTC144EE
Q102 DTC114EE
IC101 JCY0001A2
Q123,Q124 UMG2
Q125 DTC144EE
IC251 VC5035
REC/PB 5.0 Vp-p
REC/PB 3.0 Vp-p
REC/PB 5.0 Vp-p
REC/PB 4.5 Vp-p
REC 5.0 Vp-p
REC 5.0 Vp-p
1
2
3
4
5
6
A
B
C
D
E
F
G
H

5.6 MECHACON SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

- Voltage
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

*Where voltage differ between recording and palyback, the voltage during playback is shown in parenthesis.



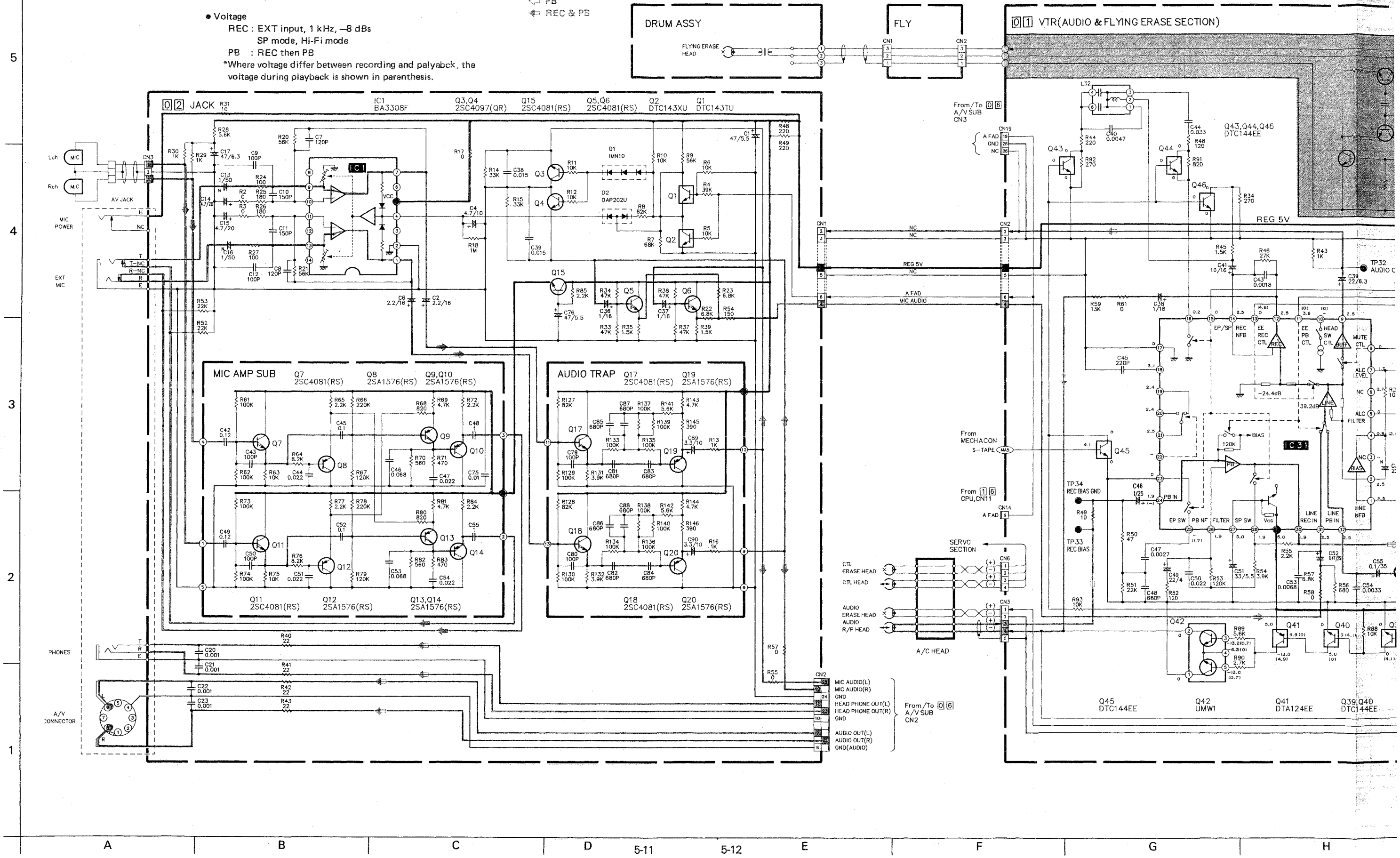
6
5
4
3
2
1
A
B
C
D
E
F
G
H
01 VTR(MECHACON SECTION)
REG 5V
UNREG 6V
From SERVO
From REGULATOR
From/To 16 CPU,CN11
From/To OPERATION UNIT (DECK),CN1
From 06 A/V SUB CN1
From/To 04 SENSOR
NC
From/To 05 TRIGGER
From E VF
To AUDIO
From 04 SENSOR
From Y/C
IC301 M38062M3-121GP
IC306 UPC1093T
IC303 BU4584BF
IC304 S-87050CF
IC305 LM358DB
IC302 M54543AFP
IC401 BA7046F
IC402 BU4053BF
IC403 TC4S69F
Q303 2SA1774(QRS)
Q310 DTC144EE
Q305 DTC114EE
Q311,Q312 DTC144EE
Q301 DTA114EE
Q313 DTC144EE
Q302 2SA1774(QRS)
Q401 2SA1774(QRS)
Q304 2SC4617(QRS)
PS301 SM-125ST
D304 RD6.8M(B1)
D305 RD6.8M(B1)
D301 DAN222
D310 DAN222
D302 RB451F
MOTOR DRIVER
0: OPEN
MODE CTL
LMF
LMR
UNREG 6V
To 06 A/V SUB CN3
To AUDIO
To 03 PRE/REC AMP CN1
To 06 A/V SUB CN1
To REGULATOR
To Y/C
To FLY ERASE
From/To SERVO
To REGULATOR
To OPERATION UNIT (DECK)
From REGULATOR
From/To 16 CPU,CN11
From Y/C
From/To 16 CPU,CN11
From/To SERVO
To 16 CPU,CN11
C DATA1
C SRDY
C SCLK
C DATA2
DRUM FF
PB CTL P
CAP FG
MODE D
S LOCK
AVG FM
EMG REQ
TRK A/M
KEY SW-A
KEY SW-B
TRK +
TRK -
POWER SW
EJECT SW
KEY SW-C
LP MOD
REC SAFE SW
TU SENS
SUP SENS
CAM SW-A
CAM SW-B
TEST 0
TEST 1
S ENBL
BATT CHK
CAS SW
TRIG SW
END SENSE
DEW SENSE
TAPE SELECT
NC
RESET
PAL
H DET
A OSEL
GND
S VHS
X IN
X OUT
A PB
A MUTE
A BIAS
VLP SPE
VREC MUTE
TRIG OUT
V ALL MUTE
V PB
VEE
VREC
FEH ON
A FM
S SCLK
S SDATA
CAP M REF
ALM ON
CTL ERS
V SW OFF
S ENABLE
SYNC CHANG
DECK POW CTL
POW LED
END LED
LD REV
LD FWD
HA MUTE
H PB
V REC
REEL CONUT
V PULSE
REF CLK
LD FAST
HD
S HD
VD
S VD
YIN
TP401 HD
PHASE COMP
SYNC SEPA
H OSC
V SEPA
Vcc

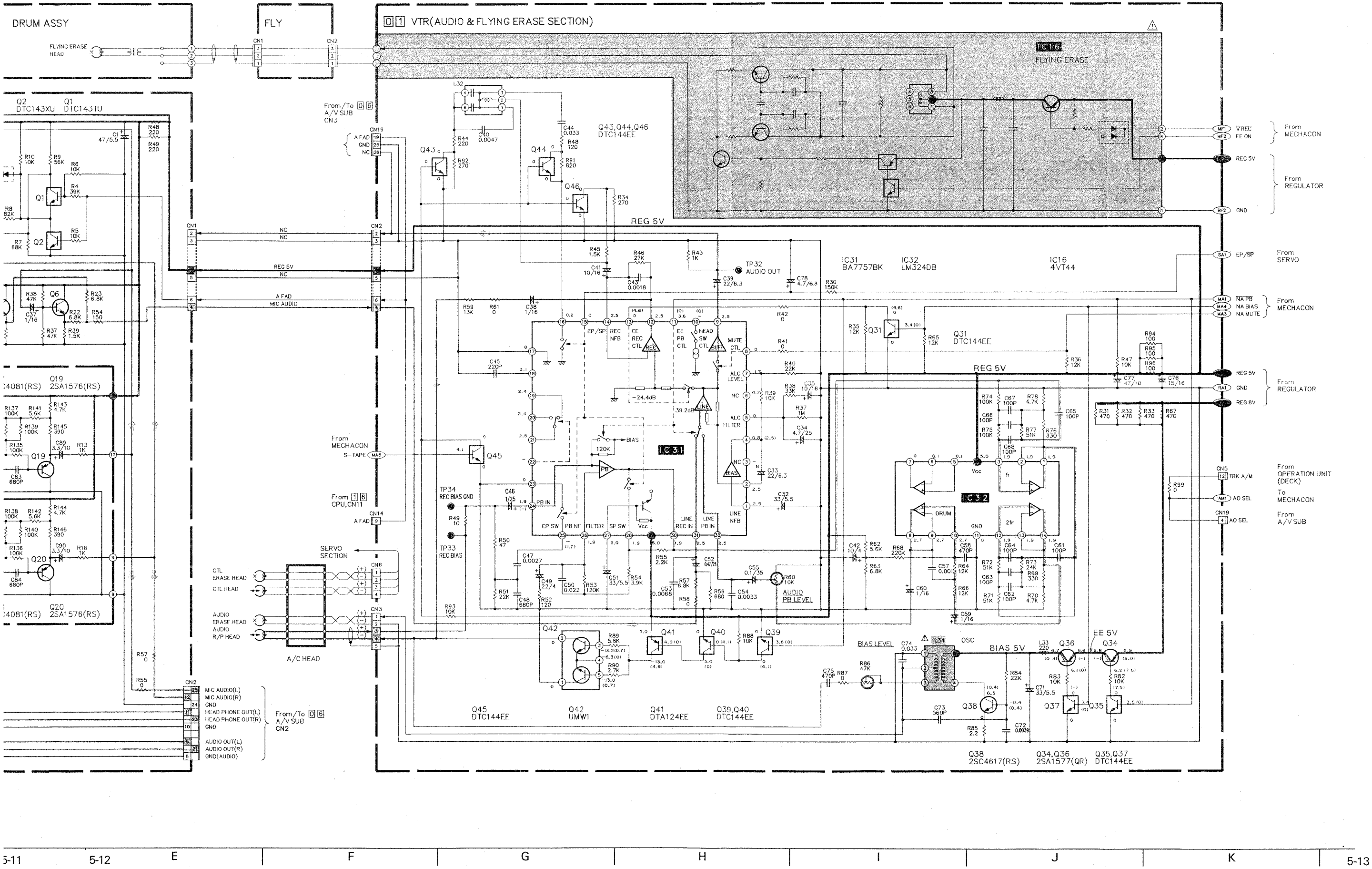
5.7 AUDIO SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety.
  Replace only with specified part numbers.

- Voltage
  REC : EXT input, 1 kHz, –8 dBs
  SP mode, Hi-Fi mode
  PB : REC then PB
  *Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

- SIGNAL PATH
  ⇐ REC
  ⇐ PB
  ⇐ REC & PB


DRUM ASSY
FLYING ERASE HEAD
FLY
CN1
CN2
01 VTR(AUDIO & FLYING ERASE SECTION)
02 JACK
IC1 BA3308F
Q3,Q4 2SC4097(QR)
Q15 2SC4081(RS)
Q5,Q6 2SC4081(RS)
Q2 DTC143XU
Q1 DTC143TU
Lch MIC
Rch MIC
AV JACK
MIC POWER
EXT MIC
CN3
T
T-NC
R-NC
R
E
H
NC
D1 IMN10
D2 DAP202U
VCC
MIC AMP SUB
Q7 2SC4081(RS)
Q8 2SA1576(RS)
Q9,Q10 2SA1576(RS)
Q11 2SC4081(RS)
Q12 2SA1576(RS)
Q13,Q14 2SA1576(RS)
AUDIO TRAP
Q17 2SC4081(RS)
Q19 2SA1576(RS)
Q18 2SC4081(RS)
Q20 2SA1576(RS)
PHONES
A/V CONNECTOR
NC
REG 5V
A FAD
MIC AUDIO
CN2
MIC AUDIO(L)
MIC AUDIO(R)
GND
HEAD PHONE OUT(L)
HEAD PHONE OUT(R)
GND
AUDIO OUT(L)
AUDIO OUT(R)
GND(AUDIO)
From/To 06 A/V SUB CN2
From/To 06 A/V SUB CN3
CN19
A FAD
GND
NC
Q43,Q44,Q46 DTC144EE
L32
REG 5V
TP32 AUDIO C
From MECHACON S-TAPE
From 16 CPU,CN11
CN14
A FAD
TP34 REC BIAS GND
TP33 REC BIAS
SERVO SECTION
CN6
CTL ERASE HEAD
CTL HEAD
CN3
AUDIO ERASE HEAD
AUDIO R/P HEAD
A/C HEAD
IC31
EP/SP
REC NFB
EE REC CTL
EE PB CTL
HEAD SW CTL
MUTE CTL
ALC LEVEL
ALC FILTER
BIAS
LINE
PB
-24.4dB
39.2dB
EP SW
PB NF
FILTER
SP SW
Vcc
LINE REC IN
LINE PB IN
LINE NFB
PB IN
Q42
Q41
Q40
Q45 DTC144EE
Q42 UMW1
Q41 DTA124EE
Q39,Q40 DTC144EE
6
5
4
3
2
1
A
B
C
D
E
F
G
H


DRUM ASSY
FLYING ERASE HEAD
FLY
CN1
CN2
01 VTR(AUDIO & FLYING ERASE SECTION)
IC16
FLYING ERASE
Q2 DTC143XU
Q1 DTC143TU
From/To 06 A/V SUB CN3
CN19
A FAD
GND
NC
L32
Q43
Q44
Q46
Q43,Q44,Q46 DTC144EE
REG 5V
NC
A FAD
MIC AUDIO
TP32 AUDIO OUT
IC31 BA7757BK
IC32 LM324DB
IC16 4VT44
Q31 DTC144EE
Q31
REC NFB
EE REC CTL
EE PB CTL
HEAD SW CTL
MUTE CTL
ALC LEVEL
ALC FILTER
NC
BIAS
LINE
LINE NFB
LINE REC IN
LINE PB IN
EP SW
PB NF
FILTER
SP SW
Vcc
PB IN
PB
REC
BUFF
-24.4dB
39.2dB
IC31
From MECHACON
S-TAPE
Q45
From 16 CPU,CN11
CN14
TP34 REC BIAS GND
TP33 REC BIAS
SERVO SECTION
CTL ERASE HEAD
CTL HEAD
AUDIO ERASE HEAD
AUDIO R/P HEAD
A/C HEAD
CN6
CN3
Q19 2SA1576(RS)
Q20 2SA1576(RS)
:4081(RS)
Q42
Q41
Q40
Q39
AUDIO PB LEVEL
BIAS LEVEL
L34
OSC
BIAS 5V
EE 5V
Q36
Q34
Q38
Q37
Q35
IC32
DRUM
GND
fr
2fr
Vcc
CN2
MIC AUDIO(L)
MIC AUDIO(R)
GND
HEAD PHONE OUT(L)
HEAD PHONE OUT(R)
GND
AUDIO OUT(L)
AUDIO OUT(R)
GND(AUDIO)
From/To 06 A/V SUB CN2
Q45 DTC144EE
Q42 UMW1
Q41 DTA124EE
Q39,Q40 DTC144EE
Q38 2SC4617(RS)
Q34,Q36 2SA1577(QR)
Q35,Q37 DTC144EE
MF1 V.REC
MF2 FE ON
From MECHACON
REG 5V
From REGULATOR
RF2 GND
SA1 EP/SP
From SERVO
MA1 NA PB
MA4 NA BIAS
MA3 NA MUTE
From MECHACON
REG 5V
RA1 GND
REG 8V
From REGULATOR
CN5
TRK A/M
From OPERATION UNIT (DECK)
AM1 AO SEL
To MECHACON
CN19
AO SEL
From A/V SUB
E
F
G
H
I
J
K

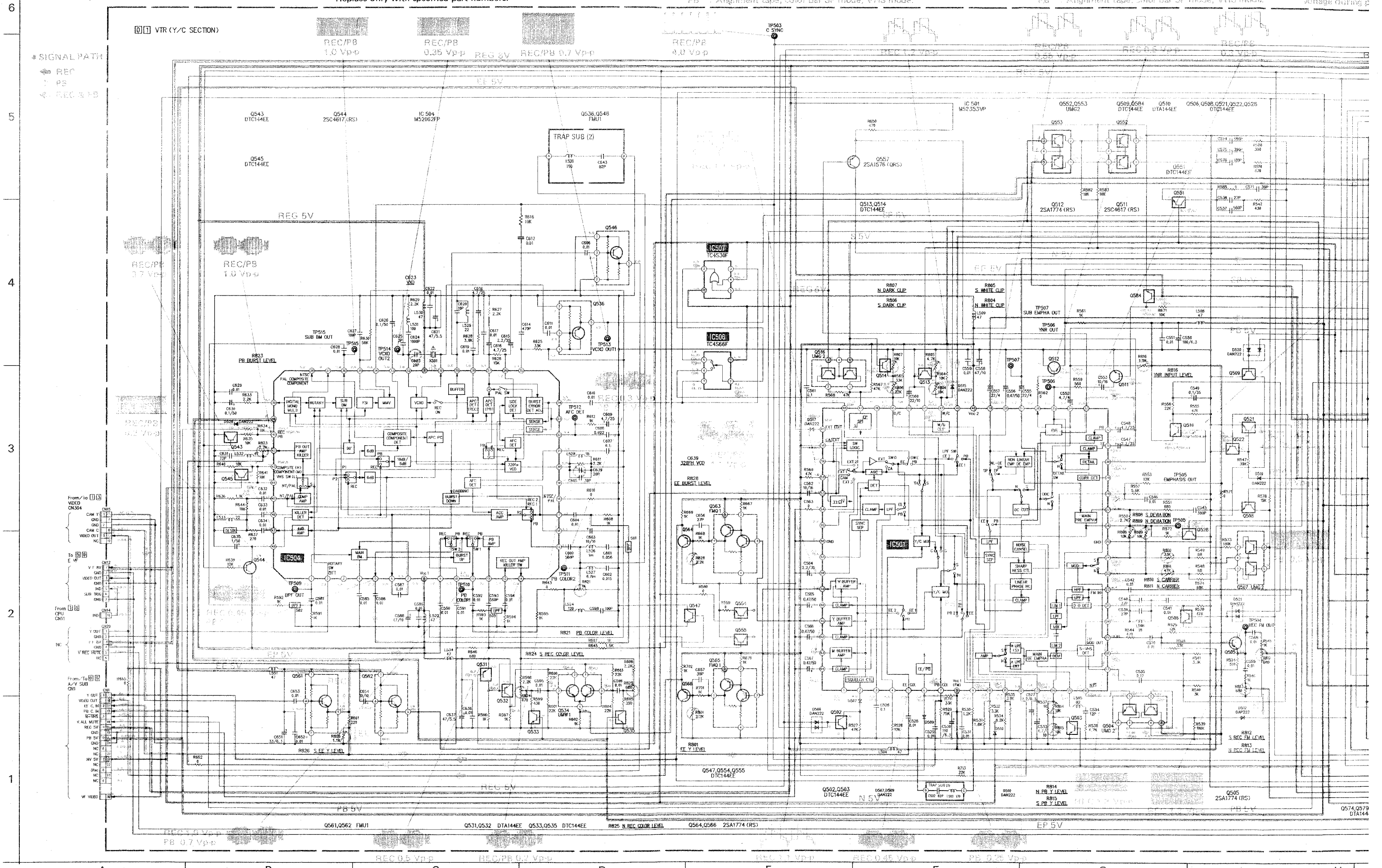
5.8 Y/C SCHEMATIC DIAGRAM

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

● Waveform REC : Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.

● Voltage REC : Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.

*Where voltage d
voltage during p



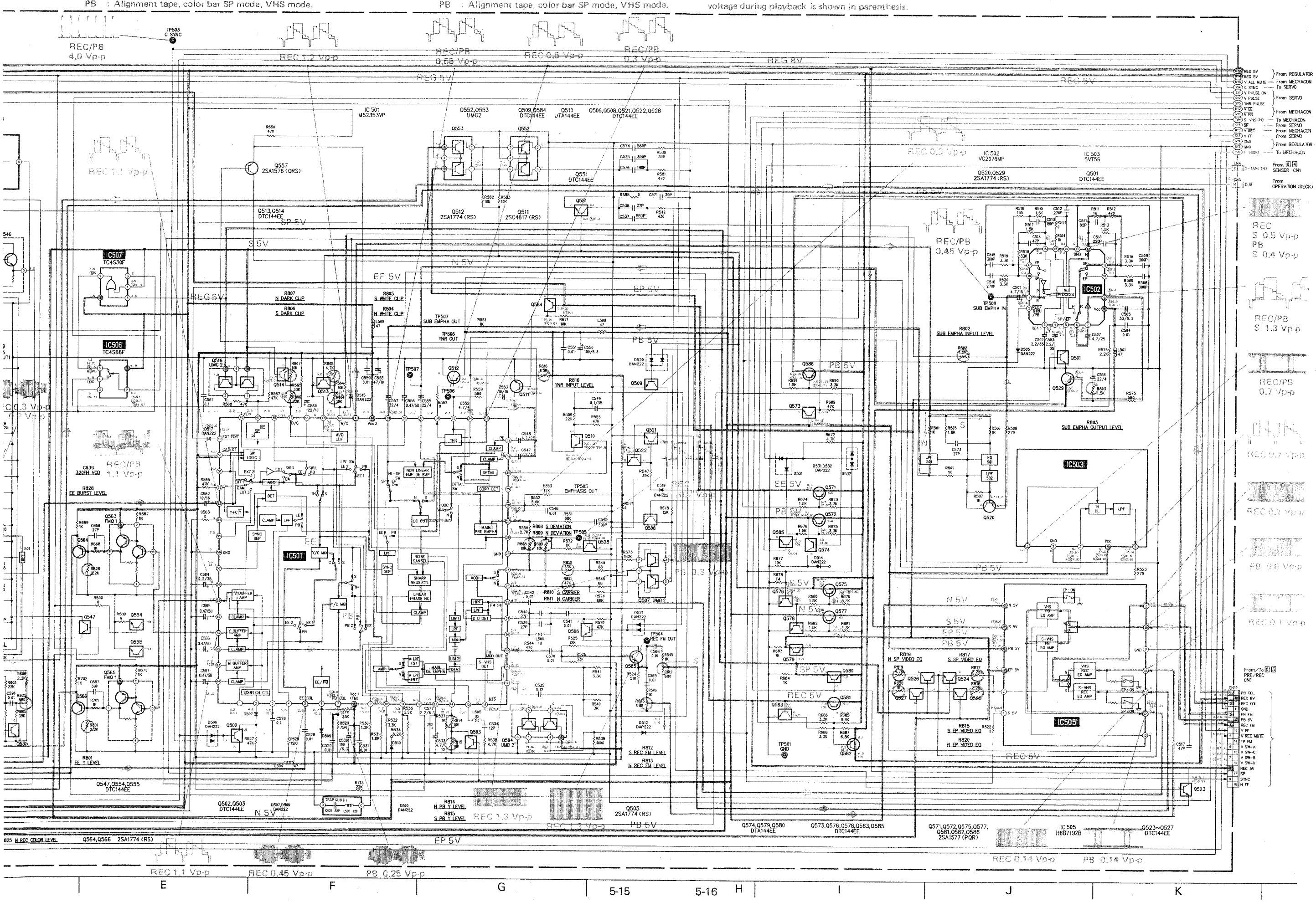
0 1 VTR (Y/C SECTION)
● SIGNAL PATH
REC
PB
REC & PB
REC/PB 1.0 Vp-p
REC/PB 0.35 Vp-p
REG 8V
REC/PB 0.7 Vp-p
REC/PB 4.0 Vp-p
TP503 C SYNC
REC 1.2 Vp-p
REC/PB 0.35 Vp-p
REC 0.5 Vp-p
REC/PB 0.3 Vp-p
EE 5V
REG 5V
Q543 DTC144EE
Q544 2SC4617 (RS)
IC504 M52062FP
Q536,Q546 FMU1
Q545 DTC144EE
TRAP SUB (2)
IC501 M52353VP
Q552,Q553 UMG2
Q509,Q584 DTC144EE
Q510 DTA144EE
Q506,Q508,Q521,Q522,Q526 DTC144EE
Q557 2SA1576 (QRS)
Q513,Q514 DTC144EE
Q512 2SA1774 (RS)
Q511 2SC4617 (RS)
Q551 DTC144EE
IC507 TC4S30F
IC506 TC4S66F
TP515 SUB 8M OUT
TP514 VCXO OUT2
TP513 VCXO OUT1
R823 PB BURST LEVEL
TP512 AFC DET
R807 N DARK CLIP
R806 S DARK CLIP
R805 S WHITE CLIP
R804 N WHITE CLIP
TP507 SUB EMPHA OUT
TP506 YNR OUT
R816 YNR INPUT LEVEL
C639 320FH VCO
R828 EE BURST LEVEL
TP505 EMPHASIS OUT
R808 S DEVIATION
R809 N DEVIATION
R810 S CARRIER
R811 N CARRIER
From/to 1 3 VIDEO CN304
To 5 9 E VF
From 1 8 CPU CN11
From/To 6 8 A/V SUB CN1
IC504
IC501
TP509 BPF OUT
TP510 PB COLOR1
TP511 PB COLOR2
R821 PB COLOR LEVEL
R824 S REC COLOR LEVEL
R826 S EE Y LEVEL
R801 EE Y LEVEL
Q547,Q554,Q555 DTC144EE
Q502,Q503 DTC144EE
Q507,Q509 DAN222
Q510 DAN222
R814 N PB Y LEVEL
R815 S PB Y LEVEL
R812 S REC FM LEVEL
R813 N REC FM LEVEL
TP504 REC FM OUT
Q505 2SA1774 (RS)
Q574,Q579 DTA144
Q561,Q562 FMU1
Q531,Q532 DTA144EE
Q533,Q535 DTC144EE
R825 N REC COLOR LEVEL
Q564,Q566 2SA1774 (RS)
REC 5V
PB 5V
EP 5V
N 5V
REC 1.0 Vp-p
PB 0.7 Vp-p
REC 0.5 Vp-p
REC/PB 0.2 Vp-p
REC 1.1 Vp-p
REC 0.45 Vp-p
PB 0.25 Vp-p
6
5
4
3
2
1
A
B
C
D
E
F
G
H

● Waveform REC : Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.

● Voltage REC : Y/C separator input, color bar SP mode, VHS mode.
PB : Alignment tape, color bar SP mode, VHS mode.

*Where voltage differ between recording and palyback, the voltage during playback is shown in parenthesis.

* Measurement only for S-VHS mode is indicated by Ⓢ.

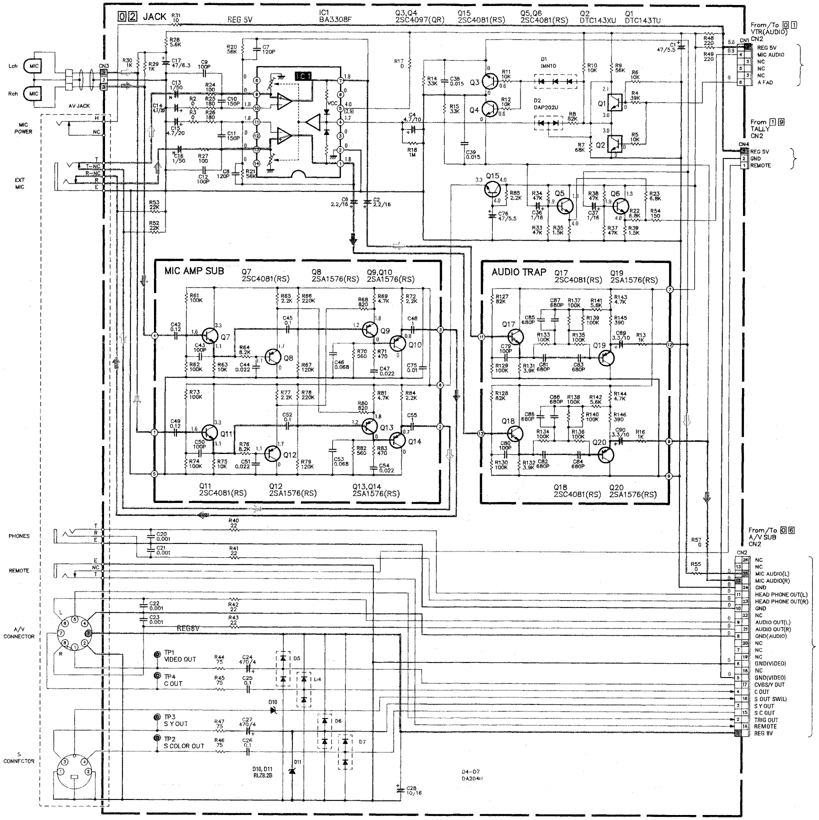


REC/PB 4.0 Vp-p
TP503 C SYNC
REC 1.2 Vp-p
REC/PB 0.55 Vp-p
REC 0.5 Vp-p
REC/PB 0.3 Vp-p
REG 8V
REG 5V
IC 501 M52353VP
Q552,Q553 UMG2
Q509,Q584 DTC144EE
Q510 DTA144EE
Q506,Q508,Q521,Q522,Q528 DTC144EE
Q557 2SA1576 (QRS)
REC 1.1 Vp-p
REC 0.3 Vp-p
IC 502 VC2076MP
IC 503 5VT56
Q520,Q529 2SA1774 (RS)
Q501 DTC144EE
Q551 DTC144EE
Q512 2SA1774 (RS)
Q511 2SC4617 (RS)
Q513,Q514 DTC144EE
SP 5V
S 5V
N 5V
EE 5V
EP 5V
IC507 TC4S30F
IC506 TC4S66F
REG 5V
R807 N DARK CLIP
R806 S DARK CLIP
R805 S WHITE CLIP
R804 N WHITE CLIP
TP507 SUB EMPHA OUT
TP506 YNR OUT
R816 YNR INPUT LEVEL
REC/PB 0.45 Vp-p
TP508 SUB EMPHA IN
R802 SUB EMPHA INPUT LEVEL
IC502
REC S 0.5 Vp-p PB S 0.4 Vp-p
REC/PB S 1.3 Vp-p
REC/PB 0.7 Vp-p
R803 SUB EMPHA OUTPUT LEVEL
IC503
PB 5V
C639 320FH VCO
R828 EE BURST LEVEL
REC/PB 1.1 Vp-p
IC501
TP505 EMPHASIS OUT
R808 S DEVIATION
R809 N DEVIATION
R810 S CARRIER
R811 N CARRIER
TP504 REC FM OUT
R812 S REC FM LEVEL
R813 N REC FM LEVEL
R801 EE Y LEVEL
R814 N PB Y LEVEL
R815 S PB Y LEVEL
Q547,Q554,Q555 DTC144EE
Q502,Q503 DTC144EE
Q507,D509 DAN222
Q505 2SA1774 (RS)
Q574,Q579,Q580 DTA144EE
Q573,Q576,Q578,Q583,Q585 DTC144EE
Q571,Q572,Q575,Q577, Q581,Q582,Q586 2SA1577 (PQR)
IC 505 H8B7192B
Q523~Q527 DTC144EE
R825 N REC COLOR LEVEL
Q564,Q566 2SA1774 (RS)
REC 1.3 Vp-p
PB 0.3 Vp-p
REC 0.1 Vp-p
PB 0.6 Vp-p
REC 0.1 Vp-p
R819 N SP VIDEO EQ
R817 S SP VIDEO EQ
R818 S EP VIDEO EQ
R820 N EP VIDEO EQ
IC505
REC 6V
REC 5V
TP501 GND
REC 0.14 Vp-p
PB 0.14 Vp-p
REC 1.1 Vp-p
REC 0.45 Vp-p
PB 0.25 Vp-p
From REGULATOR
From MECHACON
To SERVO
From SERVO
To MECHACON
From 8 4 SENSOR CN1
From OPERATION (DECK)
From/To 8 5 PRE/REC CN1
E
F
G
H
I
J
K

5.9 JACK SCHEMATIC DIAGRAM

● Voltage
REC : EXT input, 1 kHz, −8 dBs
SP mode, Hi-Fi mode
PB : REC then PB
*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

● SIGNAL PATH
⇦ AUDIO R ch
⇦ AUDIO L ch



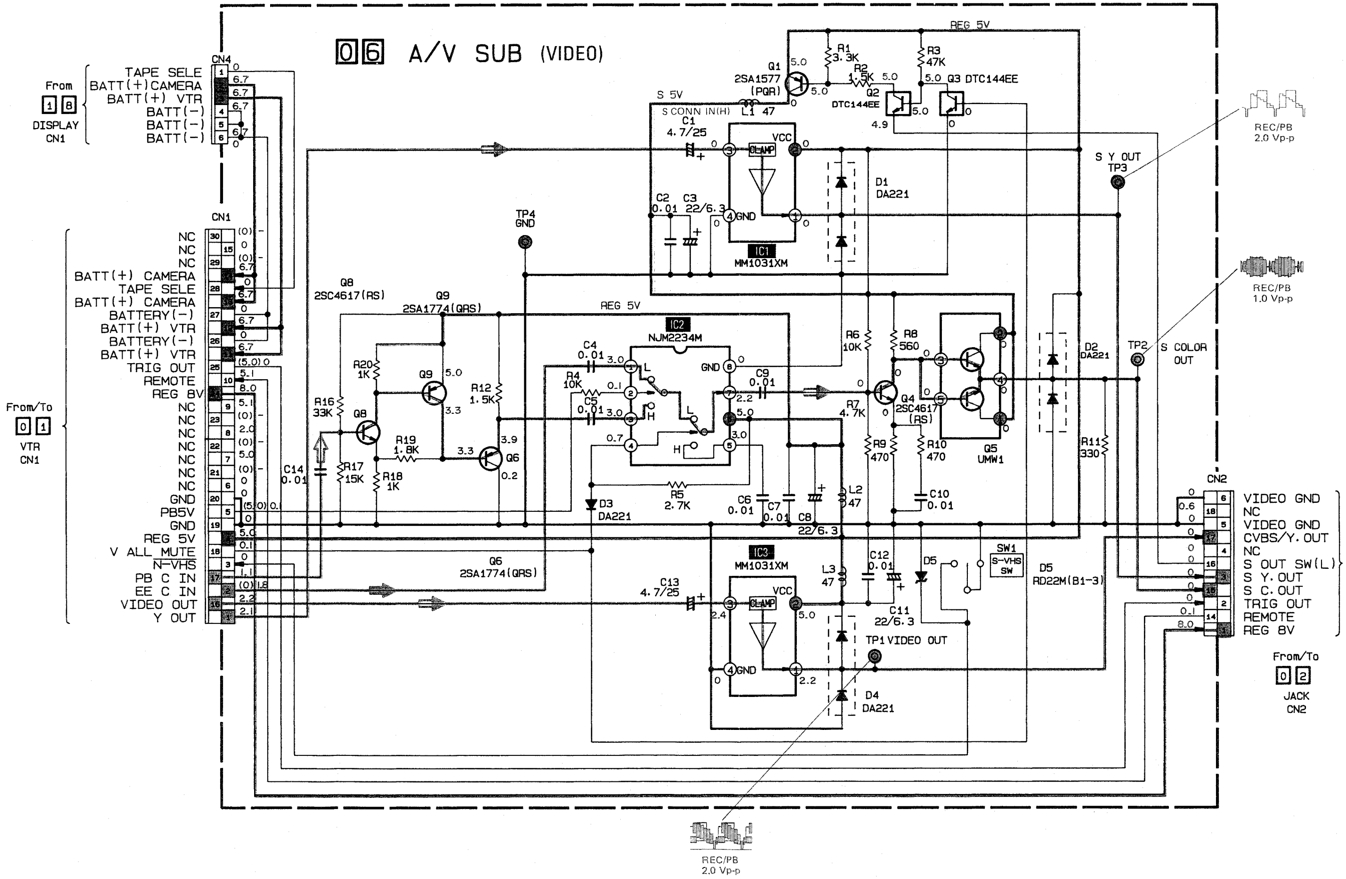
02 JACK
REG 5V
IC1 BA3308F
Q3,Q4 2SC4097(QR)
Q15 2SC4081(RS)
Q5,Q6 2SC4081(RS)
Q2 DTC143XU
Q1 DTC143TU
Lch MIC
Rch MIC
AV JACK
CN3
MIC POWER
EXT MIC
D1 IMN10
D2 DAP202U
From/To 01 VTR(AUDIO) CN2
CN1
REG 5V
MIC AUDIO
NC
NC
NC
A FAD
From 19 TALLY CN2
CN4
REG 5V
GND
REMOTE
MIC AMP SUB
Q7 2SC4081(RS)
Q8 2SA1576(RS)
Q9,Q10 2SA1576(RS)
Q11 2SC4081(RS)
Q12 2SA1576(RS)
Q13,Q14 2SA1576(RS)
AUDIO TRAP
Q17 2SC4081(RS)
Q19 2SA1576(RS)
Q18 2SC4081(RS)
Q20 2SA1576(RS)
PHONES
REMOTE
A/V CONNECTOR
S CONNECTOR
REG8V
TP1 VIDEO OUT
TP4 C OUT
TP3 S Y OUT
TP2 S COLOR OUT
D10, D11 RLZ8.2B
D4~D7 DA204U
From/To 06 A/V SUB CN2
CN2
NC
NC
MIC AUDIO(L)
MIC AUDIO(R)
GND
HEAD PHONE OUT(L)
HEAD PHONE OUT(R)
GND
NC
AUDIO OUT(L)
AUDIO OUT(R)
GND(AUDIO)
NC
NC
NC
GND(VIDEO)
NC
GND(VIDEO)
CVBS/Y OUT
C OUT
S OUT SW(L)
S Y OUT
S C OUT
TRIG OUT
REMOTE
REG 8V

5.10 A/V SUB (VIDEO) SCHEMATIC DIAGRAM

- Voltage
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.
  *Where voltage differ between recording and palyback, the voltage during playback is shown in parenthesis.

- Waveform
  * S cable connect
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

- SIGNAL PATH
  ⇦ REC
  ⇦ PB
  ⇦ REC & PB



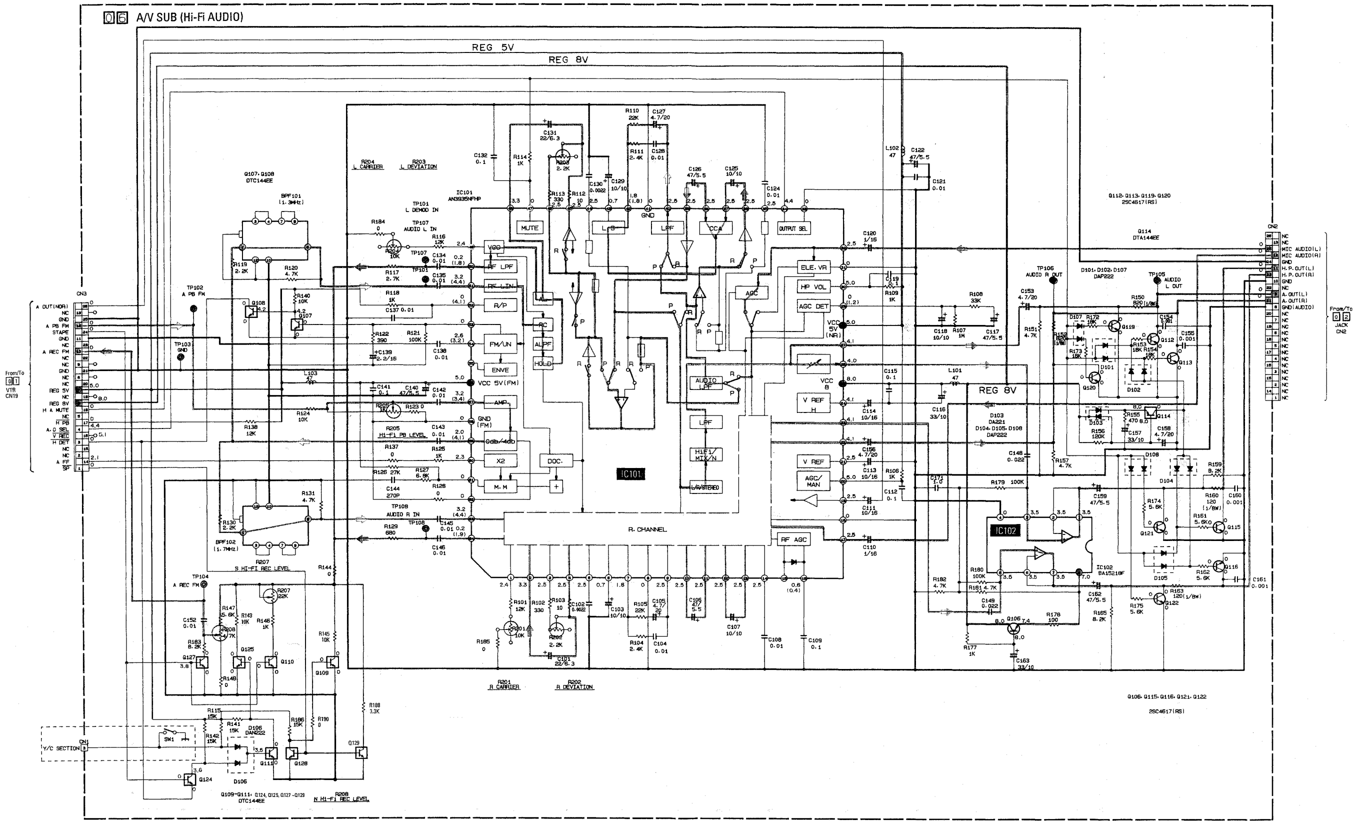
06 A/V SUB (VIDEO)
From 18 DISPLAY CN1
CN4
TAPE SELE
BATT(+)CAMERA
BATT(+) VTR
BATT(−)
BATT(−)
BATT(−)
CN1
NC
NC
NC
BATT(+) CAMERA
TAPE SELE
BATT(+) CAMERA
BATTERY(−)
BATT(+) VTR
BATTERY(−)
BATT(+) VTR
TRIG OUT
REMOTE
REG 8V
NC
NC
NC
NC
NC
NC
NC
GND
PB5V
GND
REG 5V
V ALL MUTE
N-VHS
PB C IN
EE C IN
VIDEO OUT
Y OUT
From/To 01 VTR CN1
REG 5V
Q1 2SA1577 (PQR)
R1 3.3K
R2 1.5K
R3 47K
Q2 DTC144EE
Q3 DTC144EE
S 5V
S CONN IN(H)
L1 47
C1 4.7/25
VCC
CLAMP
C2 0.01
C3 22/6.3
GND
IC1 MM1031XM
D1 DA221
S Y OUT TP3
REC/PB 2.0 Vp-p
REC/PB 1.0 Vp-p
TP4 GND
Q8 2SC4617(RS)
Q9 2SA1774(QRS)
REG 5V
IC2 NJM2234M
C4 0.01
R4 10K
C5 0.01
C9 0.01
R20 1K
R12 1.5K
R16 33K
R19 1.8K
Q6
R17 15K
R18 1K
C14 0.01
R6 10K
R8 560
R7 4.7K
Q4 2SC4617 (RS)
R9 470
R10 470
Q5 UMW1
D2 DA221
TP2
S COLOR OUT
R11 330
D3 DA221
R5 2.7K
C6 0.01
C7 0.01
C8 22/6.3
L2 47
C10 0.01
Q6 2SA1774(QRS)
IC3 MM1031XM
C13 4.7/25
L3 47
C12 0.01
C11 22/6.3
D5
SW1 S-VHS SW
D5 RD22M(B1-3)
TP1 VIDEO OUT
D4 DA221
CN2
VIDEO GND
NC
VIDEO GND
CVBS/Y. OUT
NC
S OUT SW(L)
S Y. OUT
S C. OUT
TRIG OUT
REMOTE
REG 8V
From/To 02 JACK CN2
REC/PB 2.0 Vp-p

5.11 A/V SUB (Hi-Fi) SCHEMATIC DIAGRAM

● Voltage
REC : EXT input, 1 kHz, –8 dBs
SP mode, Hi-Fi mode
PB : REC then PB

*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

● SIGNAL PATH
REC
PB
REC & PB

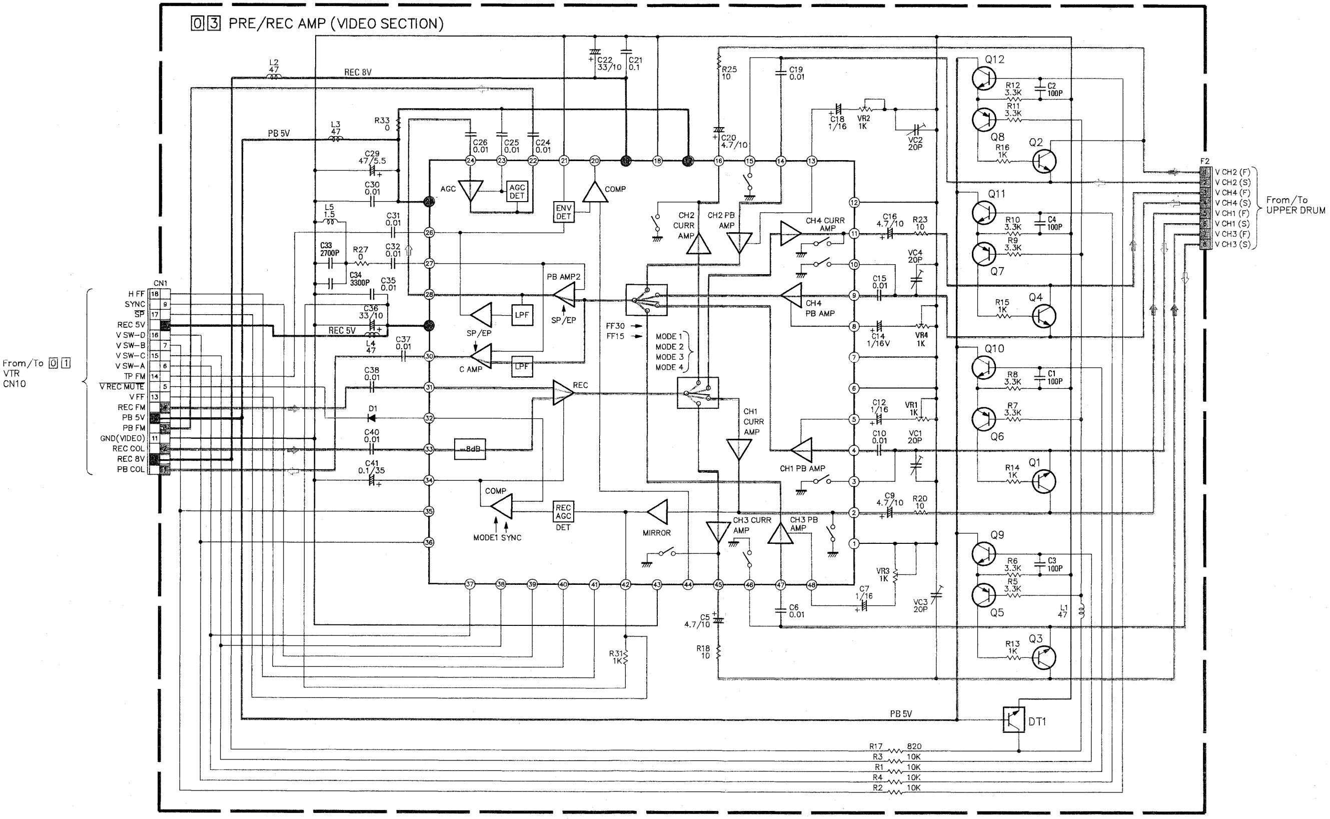


06 A/V SUB (Hi-Fi AUDIO)
REG 5V
REG 8V
IC101
AN3935NFHP
IC102
BA15218F
MUTE
LPF
CCA
OUTPUT SEL
VCO
RF LPF
R/P
FM/LIN
ENVE
VCC 5V(FM)
AMP
GND (FM)
6db/4db
X2
M.M
DOC.
HOLD
ALPF
ELE. VR
HP VOL
AGC DET
AGC
VCC 5V (NR)
V REF
HIFI MIX/N
L/R/STEREO
AGC/MAN
RF AGC
R. CHANNEL
AUDIO LPF
BPF101 (1.3MHz)
BPF102 (1.7MHz)
Q107, Q108 DTC144EE
Q112, Q113, Q119, Q120 2SC4617(RS)
Q114 DTA144EE
D101, D102, D107 DAP222
D103 DA221
D104, D105, D108 DAP222
Q106, Q115, Q116, Q121, Q122 2SC4617(RS)
Q109–Q111, Q124, Q125, Q127–Q129 DTC144EE
D106 DAN222
R204 L CARRIER
R203 L DEVIATION
R201 R CARRIER
R202 R DEVIATION
R205 Hi-Fi PB LEVEL
R207 S Hi-Fi REC LEVEL
R208 N Hi-Fi REC LEVEL
TP101 L DEMOD IN
TP107 AUDIO L IN
TP108 AUDIO R IN
TP102 A PB FM
TP103 GND
TP104 A REC FM
TP105 AUDIO L OUT
TP106 AUDIO R OUT
CN3
A OUT(NOR)
NC
GND
A PB FM
STAPE
GND
NC
A REC FM
NC
NC
GND
NC
NC
REG 5V
NC
REG 8V
H A MUTE
NC
H PB
A.O SEL
V REC
H DET
NC
NC
A FF
SP
From/To 01 VTR CN19
CN2
NC
NC
MIC AUDIO(L)
MIC AUDIO(R)
GND
H.P. OUT(L)
H.P. OUT(R)
GND
NC
A. OUT(L)
A. OUT(R)
GND(AUDIO)
From/To 02 JACK CN2
Y/C SECTION
SW1

5.12 PRE/REC AMP (VIDEO) SCHEMATIC DIAGRAM

● SIGNAL PATH
⇐ REC
⇦ PB

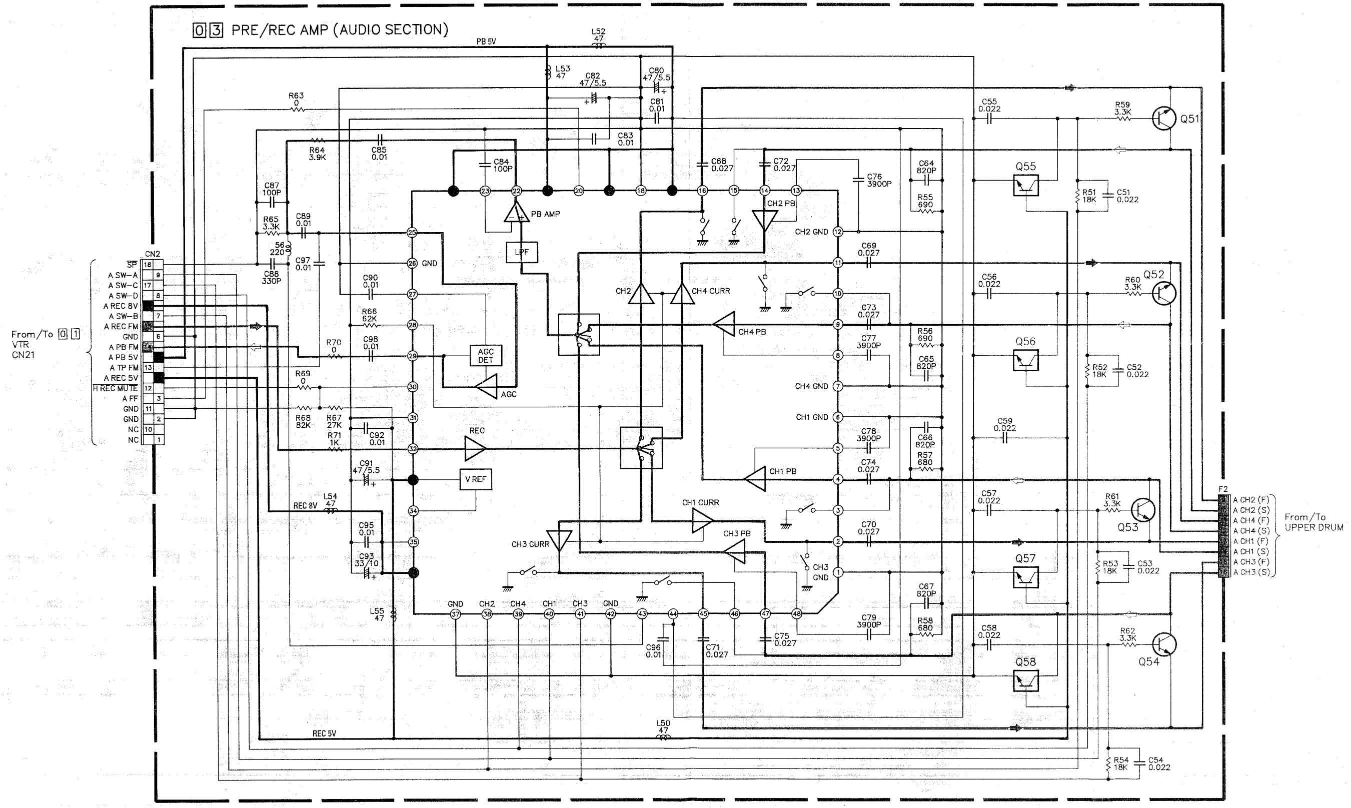
Note: ***This schematic diagram is only for reference.***
Avoid replacing individual parts.
Replace the entire unit only.


03 PRE/REC AMP (VIDEO SECTION)
From/To 01 VTR CN10
CN1
H FF 18
SYNC 9
SP 17
REC 5V
V SW-D 16
V SW-B 7
V SW-C 15
V SW-A 6
TP FM 14
V REC MUTE 5
V FF 13
REC FM
PB 5V
PB FM
GND(VIDEO) 11
REC COL
REC 8V
PB COL
L2 47
REC 8V
PB 5V
L3 47
R33 0
C29 47/5.5
C30 0.01
L5 1.5
C31 0.01
C33 2700P
R27 0
C32 0.01
C34 3300P
C35 0.01
C36 33/10
REC 5V
L4 47
C37 0.01
C38 0.01
D1
C40 0.01
C41 0.1/35
C26 0.01
C25 0.01
C24 0.01
C22 33/10
C21 0.1
AGC
AGC DET
ENV DET
COMP
PB AMP2
LPF
SP/EP
C AMP
REC
-8dB
REC AGC DET
MODE1 SYNC
MIRROR
FF30
FF15
MODE 1
MODE 2
MODE 3
MODE 4
CH2 CURR AMP
CH2 PB AMP
CH4 CURR AMP
CH4 PB AMP
CH1 CURR AMP
CH1 PB AMP
CH3 CURR AMP
CH3 PB AMP
R25 10
C19 0.01
C20 4.7/10
C18 1/16
VR2 1K
VC2 20P
C16 4.7/10
R23 10
VC4 20P
C15 0.01
C14 1/16V
VR4 1K
C12 1/16
VR1 1K
C10 0.01
VC1 20P
C9 4.7/10
R20 10
VR3 1K
C7 1/16
VC3 20P
C6 0.01
C5 4.7/10
R18 10
R31 1K
Q12
R12 3.3K
C2 100P
R11 3.3K
Q8
R16 1K
Q2
Q11
R10 3.3K
C4 100P
R9 3.3K
Q7
R15 1K
Q4
Q10
R8 3.3K
C1 100P
R7 3.3K
Q6
R14 1K
Q1
Q9
R6 3.3K
C3 100P
R5 3.3K
Q5
L1 47
R13 1K
Q3
PB 5V
DT1
R17 820
R3 10K
R1 10K
R4 10K
R2 10K
F2
V CH2 (F)
V CH2 (S)
V CH4 (F)
V CH4 (S)
V CH1 (F)
V CH1 (S)
V CH3 (F)
V CH3 (S)
From/To UPPER DRUM

5.13 PRE/REC AMP (AUDIO) SCHEMATIC DIAGRAM

● SIGNAL PATH
REC
PB

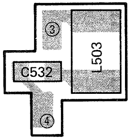
Note: ***This schematic diagram is only for reference.***
Avoid replacing individual parts.
Replace the entire unit only.



03 PRE/REC AMP (AUDIO SECTION)
PB 5V
L52 47
L53 47
C82 47/5.5
C80 47/5.5
C81 0.01
C83 0.01
R63 0
R64 3.9K
C85 0.01
C84 100P
PB AMP
LPF
C87 100P
R65 3.3K
C89 0.01
56 220
C97 0.01
C88 330P
GND
C90 0.01
R66 62K
C98 0.01
R70 0
AGC DET
AGC
R69 0
R68 82K
R67 27K
R71 1K
C92 0.01
REC
C91 47/5.5
V REF
L54 47
REC 8V
C95 0.01
C93 33/10
L55 47
REC 5V
L50 47
GND CH2 CH4 CH1 CH3 GND
C96 0.01
C71 0.027
C75 0.027
C68 0.027
C72 0.027
C76 3900P
CH2 PB
CH2 GND
C69 0.027
CH2
CH4 CURR
CH4 PB
C73 0.027
C77 3900P
CH4 GND
CH1 GND
C78 3900P
C74 0.027
CH1 PB
CH1 CURR
CH3 PB
C70 0.027
CH3 CURR
CH3 GND
C79 3900P
C64 820P
R55 690
R56 690
C65 820P
C66 820P
R57 680
C67 820P
R58 680
C55 0.022
C56 0.022
C59 0.022
C57 0.022
C58 0.022
Q55
Q56
Q57
Q58
R59 3.3K
Q51
R60 3.3K
Q52
R61 3.3K
Q53
R62 3.3K
Q54
R51 18K
C51 0.022
R52 18K
C52 0.022
R53 18K
C53 0.022
R54 18K
C54 0.022
CN2
SP 18
A SW-A 9
A SW-C 17
A SW-D 8
A REC 8V 16
A SW-B 7
A REC FM 15
GND 6
A PB FM 14
A PB 5V 5
A TP FM 13
A REC 5V 4
H REC MUTE 12
A FF 3
GND 11
GND 2
NC 10
NC 1
From/To 01 VTR CN21
F2
A CH2 (F)
A CH2 (S)
A CH4 (F)
A CH4 (S)
A CH1 (F)
A CH1 (S)
A CH3 (F)
A CH3 (S)
From/To UPPER DRUM

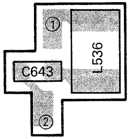
5.14 VTR CIRCUIT BOARD

— TRAP SUB (1) —


③
C532
L503
④

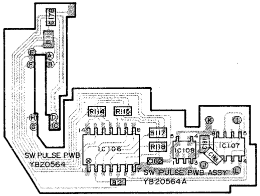
TRAP PWB ASSY YB20442J
TRAP PWB YB20442

— TRAP SUB (2) —

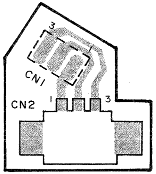

①
C643
L536
②

TRAP PWB ASSY YB20442G
TRAP PWB YB20442

— SW PULSE —

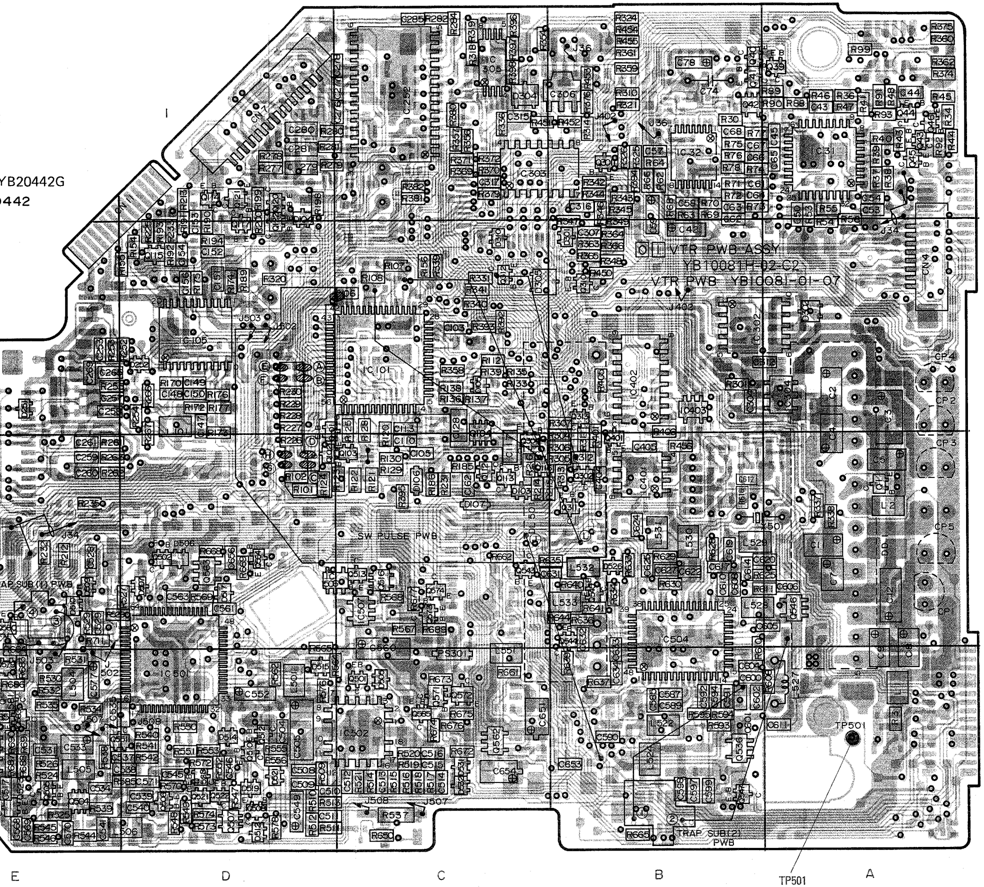

R114
R115
R117
R118
IC106
IC108
IC107
C182
R2
SW PULSE PWB
YB20564
SW PULSE PWB ASSY
YB20564A

— FLY —



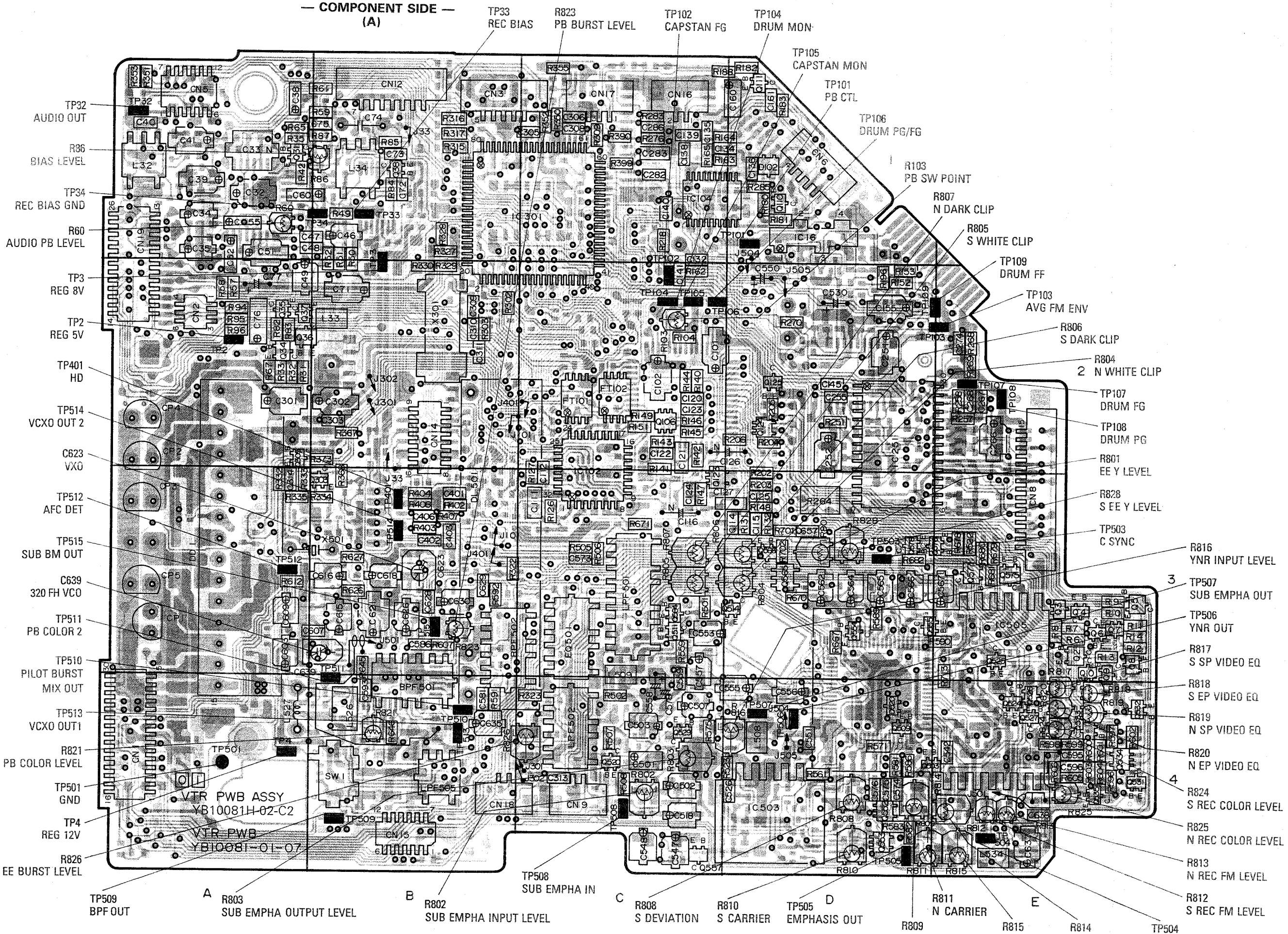
FLY PWB ASSY YB20447A
FLY PWB YB20447

— CONDUCTOR SIDE —
(B)


1
2
3
4
E
D
C
B
A
VTR PWB ASSY
YB10081H-02-C2
VTR PWB YB10081-01-07
SW PULSE PWB
TRAP SUB (1) PWB
TRAP SUB(2) PWB
IC101
IC105
IC302
IC303
IC305
IC31
IC32
IC401
IC402
IC403
IC501
IC502
IC504
CN4
CP1
CP2
CP3
CP4
CP5
TP501

TP501
GND

— COMPONENT SIDE —
(A)


TP33
REC BIAS
R823
PB BURST LEVEL
TP102
CAPSTAN FG
TP104
DRUM MON
TP105
CAPSTAN MON
TP101
PB CTL
TP106
DRUM PG/FG
R103
PB SW POINT
R807
N DARK CLIP
R805
S WHITE CLIP
TP109
DRUM FF
TP103
AVG FM ENV
R806
S DARK CLIP
R804
N WHITE CLIP
TP107
DRUM FG
TP108
DRUM PG
R801
EE Y LEVEL
R828
S EE Y LEVEL
TP503
C SYNC
R816
YNR INPUT LEVEL
TP507
SUB EMPHA OUT
TP506
YNR OUT
R817
S SP VIDEO EQ
R818
S EP VIDEO EQ
R819
N SP VIDEO EQ
R820
N EP VIDEO EQ
R824
S REC COLOR LEVEL
R825
N REC COLOR LEVEL
R813
N REC FM LEVEL
R812
S REC FM LEVEL
TP504
CARR/DEVI
R814
N PB Y LEVEL
R815
S PB Y LEVEL
R811
N CARRIER
R809
N DEVIATION
TP505
EMPHASIS OUT
R810
S CARRIER
R808
S DEVIATION
TP508
SUB EMPHA IN
R802
SUB EMPHA INPUT LEVEL
R803
SUB EMPHA OUTPUT LEVEL
TP509
BPF OUT
R826
EE BURST LEVEL
TP4
REG 12V
TP501
GND
R821
PB COLOR LEVEL
TP513
VCXO OUT1
TP510
PILOT BURST
MIX OUT
TP511
PB COLOR 2
C639
320 FH VCO
TP515
SUB BM OUT
TP512
AFC DET
C623
VXO
TP514
VCXO OUT 2
TP401
HD
TP2
REG 5V
TP3
REG 8V
R60
AUDIO PB LEVEL
TP34
REC BIAS GND
R36
BIAS LEVEL
TP32
AUDIO OUT
VTR PWB ASSY
YB10081H-02-C2
VTR PWB
YB10081-01-07
A
B
C
D
E
1
2
3
4

• Locatio
A-1

REF. No.
IC16
IC31
IC32
IC101
IC102
IC104
IC105
IC251
IC252
IC301
IC302
IC303
IC304
IC305
IC306
IC401
IC402
IC403
IC501
IC502
IC503
IC504
IC505
IC506
IC507

REF. No.
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q31
Q34
Q35
Q36
Q37
Q38
Q39
Q40
Q41
Q42
Q43
Q44
Q45
Q46
Q101
Q102
Q103
Q104
Q106
Q110
Q111
Q112
Q113
Q114
Q115
Q116
Q117
Q120
Q121
Q122
Q123
Q124
Q125
Q301
Q302
Q303
Q304
Q305
Q310
Q311
Q312
Q313
Q401
Q501
Q502

EVEL

OUT

Q

Q

EQ

Q

LEVEL

LEVEL

VEL

VEL

- Location of SMC parts

A-1D
Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC16	A-1D
IC31	B-1A
IC32	B-1B
IC101	B-2C
IC102	A-3C
IC104	A-1C
IC105	B-2D
IC251	A-2D
IC252	B-1C
IC301	A-1C
IC302	B-2B
IC303	B-1C
IC304	B-2A
IC305	B-1C
IC306	B-1B
IC401	B-3B
IC402	B-2B
IC403	B-2B
IC501	B-4D
IC502	B-4C
IC503	A-4D
IC504	B-3B
IC505	A-3E
IC506	B-3D
IC507	B-3C

REF. No.	LOCATION
TRANSISTOR	
Q1	B-3A
Q2	A-3E
Q3	A-3E
Q4	A-3E
Q5	A-3E
Q6	A-3E
Q7	A-3E
Q8	A-3E
Q9	A-3E
Q10	A-3E
Q31	A-1A
Q34	A-2A
Q35	A-2A
Q36	A-2A
Q37	A-2A
Q38	A-1B
Q39	B-1A
Q40	B-1B
Q41	B-1B
Q42	B-1B
Q43	B-1A
Q44	B-1A
Q45	B-1A
Q46	B-1A
Q101	B-2D
Q102	B-3D
Q103	B-3C
Q104	B-2C
Q106	A-2C
Q110	A-1D
Q111	A-1D
Q112	B-3C
Q113	B-3C
Q114	B-1D
Q115	B-2D
Q116	B-3C
Q117	B-2D
Q120	B-1D
Q121	B-1D
Q122	B-1D
Q123	A-3C
Q124	A-2D
Q125	A-2D
Q301	B-1B
Q302	B-3B
Q303	A-3B
Q304	B-3C
Q305	A-2A
Q310	B-2B
Q311	B-3B
Q312	B-2C
Q313	B-2B
Q401	B-3B
Q501	B-4C
Q502	B-3D

REF. No.	LOCATION
TRANSISTOR	
Q503	A-4E
Q504	B-4E
Q505	B-4E
Q506	B-4D
Q507	B-4D
Q508	B-4D
Q509	A-4D
Q510	B-4D
Q511	A-3C
Q512	B-4D
Q513	B-3C
Q514	A-3D
Q516	B-3C
Q520	A-4C
Q521	B-4D
Q522	B-4D
Q523	B-4E
Q524	A-4E
Q525	A-3E
Q526	A-4E
Q527	A-4E
Q528	B-4D
Q529	A-4C
Q531	A-4E
Q532	A-4E
Q533	A-4E
Q534	A-4E
Q535	A-4E
Q536	B-4B
Q543	B-3C
Q544	B-3B
Q545	B-3B
Q546	B-3A
Q547	B-4B
Q551	B-4E
Q552	A-4D
Q553	A-4D
Q554	A-3D
Q555	A-3D
Q557	A-4E
Q561	B-4C
Q562	B-4C
Q563	B-3D
Q564	B-3D
Q565	A-3D
Q566	A-3D
Q571	B-4C
Q572	B-4C
Q573	B-3C
Q574	B-3C
Q575	A-3E
Q576	A-3E
Q577	A-3E
Q578	A-3D
Q579	B-4E
Q580	B-3E
Q581	B-4E
Q582	B-4E
Q583	B-4E
Q584	A-3C
Q585	B-4C
Q586	B-4E

REF. No.	LOCATION
DIODE	
D102	A-1D
D103	B-3C
D104	B-1D
D105	B-2C
D106	B-3C
D107	B-3C
D251	B-2E
D252	B-2D
D301	B-2B
D302	B-2A
D304	B-1C
D305	B-2C

REF. No.	LOCATION
DIODE	
D310	B-2C
D505	B-4C
D506	B-3D
D507	B-3D
D508	B-3E
D509	B-3E
D510	B-3E
D512	B-4D
D514	B-4D
D515	B-4D
D517	B-3D
D519	B-4D
D520	A-4D
D521	B-4D
D526	B-3B
D531	B-4C
D532	B-4C

REF. No.	LOCATION
RESISTOR	
R3	B-4A
R6	A-3E
R7	A-3E
R8	A-3E
R9	A-3E
R10	A-3E
R11	A-3E
R12	A-3E
R13	A-3E
R14	A-3E
R30	B-1B
R31	A-2A
R32	A-2A
R33	A-2A
R34	B-1A
R35	A-1A
R36	B-1A
R37	B-1A
R38	B-1A
R39	B-1A
R40	B-1A
R41	B-1A
R42	A-1A
R43	B-1A
R44	B-1A
R45	B-1A
R46	B-1A
R47	B-1A
R48	B-1A
R49	A-1B
R50	A-1B
R51	A-1B
R52	A-1B
R53	B-1A
R54	B-2A
R55	B-1A
R56	B-2A
R57	A-2A
R58	A-2A
R59	A-1B
R60	A-1A
R61	A-1B
R62	B-1B
R63	B-1B
R64	B-1B
R65	A-1A
R66	B-1B
R67	A-2A
R68	B-1B
R69	B-1B
R70	B-1B
R71	B-1B
R72	B-1B
R73	B-1B
R74	B-1B
R75	B-1B
R76	B-1B
R77	B-1B
R78	B-1B
R82	A-2A
R83	A-2A
R84	A-1B

REF. No.	LOCATION
RESISTOR	
R85	A-1B
R86	A-1B
R87	A-1B
R88	B-1A
R89	B-1A
R90	B-1A
R91	B-1A
R92	B-1A
R93	B-1A
R94	A-2A
R95	A-2A
R96	A-2A
R101	B-3D
R102	B-3D
R103	A-2C
R104	A-2C
R107	B-2C
R108	B-2C
R112	B-2C
R120	B-3C
R121	B-3C
R122	B-3C
R123	B-3C
R124	B-3D
R125	B-2C
R126	A-3C
R127	A-3C
R128	B-2C
R129	B-3C
R130	B-3C
R131	A-3D
R132	A-3D
R133	B-2C
R135	B-2C
R136	B-2C
R137	B-2C
R138	B-2C
R139	B-2C
R140	A-2C
R141	A-2C
R142	A-2C
R143	A-2C
R144	A-2C
R145	A-2C
R146	A-2C
R147	A-3C
R148	A-3D
R149	A-2C
R151	A-2C
R152	A-2D
R153	A-2D
R154	B-2D
R155	B-2D
R156	B-2C
R162	A-2C
R163	A-1C
R164	A-1C
R165	A-1C
R170	B-2D
R172	B-2D
R173	B-2D
R174	B-2D
R175	B-2D
R176	B-2D
R177	B-2D
R180	A-1D
R181	A-1D
R182	A-1D
R183	A-1D
R185	B-3C
R186	B-3C
R188	A-1C
R189	B-2D
R190	B-2D
R191	B-2D
R192	B-2D
R193	B-2D
R194	B-2D
R196	A-2D
R198	B-1D
R199	B-1D
R200	B-1D
R202	A-3D
R203	A-3D
R204	A-2D

REF. No.	LOCATION
RESISTOR	
R205	A-2D
R206	A-2D
R212	B-3E
R213	B-1D
R214	B-3C
R215	B-3C
R216	B-3C
R218	A-1C
R225	B-2D
R226	B-3D
R227	B-2D
R228	B-2D
R229	B-2D
R230	B-2D
R231	B-3C
R232	B-3E
R233	B-2D
R234	B-4E
R235	B-3E
R251	A-2D
R252	B-2D
R253	B-2E
R254	B-2D
R255	B-2E
R257	A-2E
R258	A-2E
R261	B-3E
R262	B-3E
R263	B-3E
R264	A-3D
R266	B-2D
R267	B-2D
R268	A-2E
R269	A-2E
R270	A-2D
R276	A-1C
R277	B-1D
R278	B-1D
R279	B-1D
R280	B-1D
R281	B-1D
R282	B-1C
R283	A-1C
R284	B-1C
R285	A-1D
R301	B-2B
R302	A-2B
R303	A-2B
R304	B-3B
R305	B-3B
R306	B-3B
R307	B-2B
R309	A-1C
R310	B-1B
R311	B-3B
R312	B-3B
R313	B-3B
R314	B-1B
R315	A-1B
R316	A-1B
R317	A-1B
R318	B-1C
R319	B-1C
R320	B-2D
R321	B-1B
R322	A-3B
R323	A-4C
R324	B-1B
R325	B-1B
R326	B-1B
R327	A-1B
R328	A-1B
R329	A-2B
R330	A-2B
R331	B-2C
R332	A-3A
R333	A-3A
R334	A-3B
R335	A-3A
R336	B-1C
R337	B-3A
R338	B-3A
R339	B-2C
R340	B-2C
R341	B-2C

REF. No.	LOCATION
RESISTOR	
R342	B-1B
R343	B-1B
R344	B-1B
R345	B-1B
R346	B-1B
R347	B-2B
R348	B-2B
R349	B-2B
R350	A-1C
R351	A-1A
R352	A-1C
R353	A-1A
R354	B-1C
R355	A-1C
R356	B-1C
R357	B-1C
R358	B-2C
R359	B-1B
R360	B-1A
R361	B-1B
R362	B-1A
R363	B-2B
R364	B-2B
R365	B-2B
R366	B-2B
R367	A-2B
R368	A-3B
R369	B-1C
R370	B-1C
R371	B-1C
R372	B-1C
R373	A-2B
R374	B-1A
R375	B-1A
R376	B-1B
R379	B-1C
R380	B-1C
R381	B-1C
R382	B-1C
R390	A-1C
R392	B-2C
R393	B-2C
R394	B-1B
R395	B-3C
R396	B-1C
R397	B-1C
R398	B-1C
R399	A-1C
R401	B-3B
R402	A-3B
R403	A-3B
R404	A-3B
R405	B-2B
R406	B-2B
R407	A-3B
R408	A-3B
R450	B-2B
R451	B-1C
R452	B-1B
R453	B-1B
R454	B-1B
R455	B-1B
R456	B-3B
R501	A-3C
R502	A-4C
R505	A-3C
R506	A-3C
R507	A-4C
R508	A-4C
R509	B-4D
R510	B-4D
R511	B-4D
R512	B-4D
R513	B-4D
R514	B-4C
R515	B-4C
R516	B-4C
R517	B-4C
R518	B-4C
R519	B-4C
R520	B-4C
R521	B-4C
R522	A-3E
R523	A-4D
R524	B-4E

REF. No.	LOCATION
RESISTOR	
R525	B-4E
R526	B-4E
R527	B-3D
R528	B-3E
R529	B-3E
R530	B-4E
R531	B-4E
R532	B-4E
R534	B-4E
R535	B-4E
R537	B-4C
R538	B-4E
R539	B-4E
R540	B-4D
R541	B-4D
R542	B-4D
R544	B-4E
R545	B-4E
R546	B-4E
R547	B-4D
R548	B-4D
R549	B-4D
R550	B-4D
R551	B-4D
R552	B-4D
R553	B-4D
R555	B-4D
R556	B-4D
R559	A-3C
R561	A-4D
R562	B-4D
R564	B-4D
R565	B-4D
R567	B-3C
R568	B-3C
R569	B-3D
R570	B-4D
R571	A-4D
R572	B-4D
R573	B-4D
R574	B-4D
R575	A-4C
R576	B-4D
R578	B-4D
R581	A-4D
R582	A-4D
R583	A-4D
R585	B-4D
R586	A-4D
R589	A-3D
R590	A-3E
R591	A-4B
R592	A-3B
R593	B-4B
R594	B-4B
R595	B-4B
R596	A-4E
R597	A-4E
R598	A-4E
R599	A-4E
R600	A-4E
R601	A-4E
R602	A-4E
R603	A-4E
R604	A-4E
R605	A-4E
R606	A-4E
R607	A-3B
R608	B-4A
R610	B-4B
R611	B-3B
R612	A-3A
R616	B-3B
R625	B-3A
R626	A-3B
R627	A-3B
R628	B-3B
R629	B-3B
R630	B-3B
R633	B-3B
R634	B-3B
R635	B-3B
R636	B-3B
R637	B-4B
R639	B-4B

REF. No.	LOCATION
RESISTOR	
R640	B-3B
R641	B-3B
R644	B-3B
R645	A-3B
R646	A-4B
R650	B-4C
R661	B-4C
R663	B-3C
R665	B-4B
R667	A-3D
R668	B-3D
R669	B-3D
R670	A-3D
R671	A-3C
R672	B-4C
R673	B-4C
R674	B-4C
R675	B-4C
R676	B-4C
R677	B-3C
R678	A-3E
R679	A-3E
R680	A-3E
R681	A-3E
R682	A-3D
R683	B-4E
R684	B-4E
R685	B-4E
R686	B-4E
R687	B-4E
R688	B-4E
R689	B-3C
R690	B-4E
R691	B-4E
R701	A-3D
R702	A-3D
R711	B-3E
R713	A-3E
R801	A-3D
R802	A-4C
R803	A-4C
R804	A-3D
R805	A-3C
R806	A-3D
R807	A-3C
R808	A-4D
R809	A-4D
R810	A-4D
R811	A-4D
R812	A-4E
R813	A-4E
R814	A-4E
R815	A-4E
R816	A-4D
R817	A-4E
R818	A-4E
R819	A-4E
R820	A-4E
R821	A-4B
R822	A-3B
R823	A-3C
R824	A-4E
R825	A-4E
R826	A-4C
R828	A-3D

REF. No.	LOCATION
CAPACITOR	
C2	B-2A
C3	B-2A
C4	B-3A
C5	B-3A
C7	B-3A
C8	B-4A
C9	B-4A
C11	B-3A
C12	B-3A
C32	A-1A
C33	A-1A
C34	A-1A
C35	A-1A
C38	A-1A
C39	A-1A
C40	A-1A
C41	A-1A
C42	B-2B
C43	B-1A
C44	B-1A
C45	B-1A
C46	A-1B
C47	A-1B
C48	A-1B
C49	A-2A
C50	B-1A
C51	A-1A
C52	A-1A
C53	B-1A
C54	B-1A
C55	A-1A
C57	B-1B
C58	B-1B
C59	B-2B
C60	A-1A
C61	B-1B
C62	B-1B
C63	B-1B
C64	B-1B
C65	B-1A
C66	B-1B
C67	B-1B
C68	B-1B
C71	A-2B
C72	A-1B
C73	A-1B
C75	A-1B
C76	A-2A
C78	B-1B
C101	A-2C
C102	A-2C
C103	B-2C
C105	B-3C
C106	B-2C
C110	B-3C
C111	A-3C
C112	A-3C
C113	B-2C
C114	A-3D
C115	A-3D
C117	B-3C
C120	A-2C
C121	A-2C
C122	A-2C
C123	A-2C
C124	A-3C
C125	A-3D
C127	A-3D
C128	B-2C
C132	A-1C
C134	A-1C
C135	A-1C
C136	A-1D
C138	A-1C
C139	A-1C
C140	A-1C
C141	A-2C
C145	A-2D
C147	B-2D
C148	B-2D
C149	B-2D
C150	B-2D
C151	B-2D
C152	B-2D
C153	B-2D

REF. No.	LOCATION
CAPACITOR	
C154	B-2D
C155	A-2D
C156	B-2D
C160	A-1D
C161	A-1D
C162	B-3C
C251	A-2D
C252	A-2D
C253	B-2E
C255	A-2D
C257	B-2E
C258	B-2E
C259	B-3E
C260	B-3E
C261	B-3E
C265	B-2E
C266	A-2E
C267	A-2E
C268	A-2E
C269	B-2E
C274	A-2E
C276	B-1C
C277	B-1C
C278	B-1C
C279	B-1D
C280	B-1D
C281	B-1D
C282	A-1C
C283	A-1C
C285	B-1C
C286	A-1C
C301	A-2A
C302	A-2B
C303	A-2B
C304	B-2B
C305	A-1C
C306	A-1C
C307	B-2B
C308	A-1C
C309	A-2B
C310	A-2B
C311	A-2B
C312	B-2A
C313	A-4C
C314	A-3A
C315	B-1C
C316	B-1B
C317	B-1C
C401	A-3B
C402	A-3B
C403	A-3B
C405	B-3B
C406	A-3B
C501	A-4C
C502	A-4C
C503	A-4C
C504	B-4D
C505	B-4D
C507	A-4C
C508	B-4D
C509	B-4D
C510	B-4D
C511	B-4D
C512	B-4C
C513	B-4C
C514	B-4C
C515	B-4C
C516	B-4C
C517	B-4E
C518	A-4C
C526	A-4D
C528	B-3E
C529	B-3E
C531	B-4E
C533	B-4E
C534	B-4E
C535	B-4E
C537	B-4D
C538	B-4D
C539	B-4D
C540	B-4D
C541	B-4D
C542	A-4E
C545	B-4D
C546	B-4D

REF. No.	LOCATION
CAPACITOR	
C547	A-4C
C548	A-4C
C549	B-4D
C551	A-4D
C552	B-4D
C553	A-3C
C555	A-4D
C556	A-4D
C557	A-3C
C559	A-4C
C560	B-4C
C561	B-3D
C562	A-3D
C563	B-3D
C564	A-3D
C565	A-3D
C566	A-3D
C567	A-3E
C568	B-4E
C569	B-4E
C570	B-4E
C571	B-4D
C573	A-3C
C574	A-4D
C575	A-4D
C576	A-4D
C577	B-4E
C581	A-4B
C585	B-4B
C586	A-3B
C587	B-4B
C589	B-4B
C590	B-4B
C591	B-4B
C592	B-4B
C593	A-4B
C594	B-4B
C595	A-4E
C596	A-4E
C598	B-4B
C600	B-4B
C601	B-4B
C602	B-4B
C603	A-3A
C604	B-4B
C605	B-3A
C606	B-3A
C607	A-3B
C608	B-3B
C609	A-3A
C610	B-3B
C611	B-4A
C612	B-3B
C614	B-3B
C615	A-3B
C616	A-3B
C617	B-3B
C618	A-3B
C619	B-3B
C620	B-3A
C621	A-3B
C622	B-3B
C623	A-3B
C624	B-3B
C625	B-3B
C626	A-3B
C627	B-3B
C628	A-3B
C629	A-3B
C630	A-3B
C631	B-3B
C632	B-3B
C633	B-3B
C634	B-4B
C635	A-4B
C637	A-4E
C638	A-4E
C639	A-3B
C651	B-4C
C652	B-4C
C653	B-4B
C654	B-4C
C656	B-3D
C657	A-3D

REF. No.	LOCATION
COIL	
L1	B-4A
L2	B-3A
L32	A-1A
L33	A-2B
L34	A-1B
L101	B-2D
L501	B-4D
L504	B-4E
L505	B-4E
L506	B-4D
L508	A-4D
L509	A-4C
L521	B-4B
L522	B-4B
L524	B-4B
L526	A-4B
L528	B-3B
L529	B-3B
L530	B-3B
L531	B-3B
L532	B-3B
L533	B-3B
L534	A-4E
L551	B-4C

REF. No.	LOCATION
TRAP	
TRAP1	A-2C
TRAP2	A-2C

REF. No.	LOCATION
EQUALIZER	
EQ501	A-3C

REF. No.	LOCATION
LOW PASS FILTER	
LPF501	A-3C
LPF502	A-4C
LPF505	A-4B

REF. No.	LOCATION
BAND PASS FILTER	
BPF501	A-4B
BPF502	A-3B

REF. No.	LOCATION
CRYSTAL	
X301	A-2B

REF. No.	LOCATION
SWITCH	
SW1	A-4B

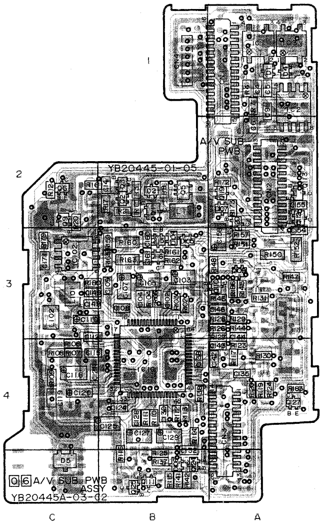
REF. No.	LOCATION
LED	
PS301	B-4C

REF. No.	LOCATION
TEST PIN	
TP2	A-2A
TP3	A-1B
TP4	A-4A
TP32	A-1A
TP33	A-1B
TP34	A-1B
TP101	A-1D
TP102	A-2C
TP103	A-2E
TP104	A-2C
TP105	A-2C
TP106	A-2C
TP107	A-2E
TP108	A-2E
TP109	A-2D
TP401	A-3B
TP503	A-3D
TP504	A-4E
TP505	A-4D
TP506	A-4D
TP507	A-4D
TP508	A-4C
TP509	A-4B
TP510	A-4B
TP511	A-4B
TP512	A-3A
TP513	A-4B
TP514	A-3B
TP515	A-3B

REF. No.	LOCATION
CONNECTOR	
CN1	A-4A
CN2	A-2A
CN3	A-1B
CN4	B-2A
CN5	A-1A
CN6	A-1D
CN7	B-1D
CN8	A-3E
CN9	A-4C
CN10	B-4E
CN12	A-1B
CN14	A-2B
CN15	A-4B
CN16	A-1C
CN17	A-1C
CN18	A-4B
CN19	A-1A
CN21	B-3E

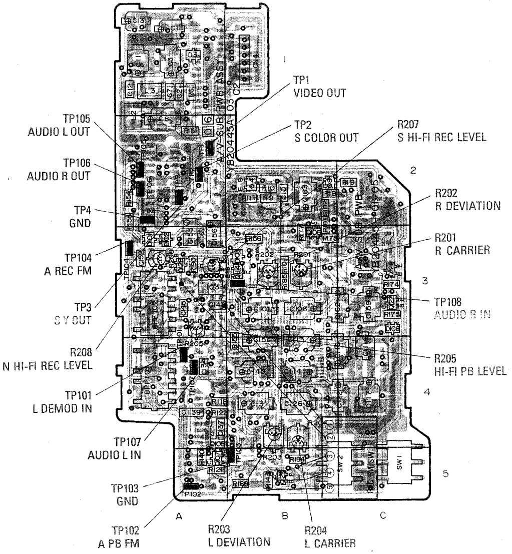
5.15 A/V SUB, JACK, TRIGGER, UPPER DRUM CIRCUIT BOARD

— CONDUCTOR SIDE — (B)



1
2
3
4
5
A/V SUB PWB
YB20445-01-05
06 A/V SUB PWB ASSY
YB20445A-03-02
C
B
A

— COMPONENT SIDE — (A)



TP1
VIDEO OUT
TP2
S COLOR OUT
R207
S HI-FI REC LEVEL
TP105
AUDIO L OUT
TP106
AUDIO R OUT
TP4
GND
TP104
A REC FM
TP3
S Y OUT
R208
N HI-FI REC LEVEL
TP101
L DEMOD IN
TP107
AUDIO L IN
TP103
GND
TP102
A PB FM
R203
L DEVIATION
R204
L CARRIER
R202
R DEVIATION
R201
R CARRIER
TP108
AUDIO R IN
R205
HI-FI PB LEVEL
1
2
3
4
5
A
B
C

- Location of SMC parts A-1D

A-1D
└ Location
└ A : COMPONENT SIDE
  B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC1	B-1A
IC2	B-1A
IC3	B-1A
IC101	B-4B
IC102	B-3C

REF. No.	LOCATION
TRANSISTOR	
Q1	B-2B
Q2	B-2B
Q3	B-2B
Q4	A-2B
Q5	B-2B
Q6	B-2C
Q8	A-2B
Q9	B-2C
Q106	A-3B
Q107	A-5A
Q108	A-4A
Q109	B-3A
Q110	B-3A
Q111	B-5B
Q112	B-2A
Q113	B-2A
Q114	A-3B
Q115	B-3B
Q116	B-3B
Q119	B-2A
Q120	B-2A
Q121	A-3C
Q122	A-3C
Q124	B-5B
Q125	B-5B
Q127	B-4A
Q128	A-3A
Q129	A-5B

REF. No.	LOCATION
DIODE	
D1	B-1A
D2	B-2B
D3	A-1A
D4	B-1A
D5	B-5C
D101	A-3A
D102	A-3A
D103	A-3B
D104	B-3B
D105	B-3B
D106	B-5B
D107	B-2A
D108	A-3C

REF. No.	LOCATION
RESISTOR	
R1	B-2B
R2	B-2B
R3	B-2B
R4	B-1A
R5	A-2A
R6	A-1A
R7	B-1A
R8	B-2B
R9	A-2B
R10	A-2B
R11	A-2B
R12	B-2C
R16	B-2C
R17	B-2B
R18	A-2B
R19	A-2C
R20	B-2C
R101	A-3B
R102	B-3B
R103	B-3B
R104	B-3B
R105	B-3B
R106	B-4C
R107	B-4C
R108	B-4C
R109	B-4C
R110	B-4B
R111	B-4B
R112	B-4B
R113	B-4B
R114	B-4B
R115	B-5B
R116	B-5B
R117	B-4A
R118	A-4A
R119	B-4A
R120	B-4A
R121	A-5A
R122	A-4A
R123	B-4A
R124	B-4A
R125	B-5B
R126	B-3A
R127	B-3A
R128	B-3A
R129	B-3A
R130	B-4A
R131	B-3A
R137	B-5B
R138	B-4B
R140	A-5A
R141	B-5B
R142	B-5B
R143	A-5B
R144	B-3A
R145	B-3A
R146	B-3A
R147	B-3A
R148	B-3A
R150	B-3A
R151	B-3A
R152	B-3A
R153	A-2A
R154	A-2A
R155	A-4B
R156	A-3B
R157	B-3A
R159	B-3B
R160	B-3B
R161	B-3B
R162	B-3B
R163	B-3B
R165	B-3B
R172	B-2A
R173	B-2A
R174	A-3C
R175	A-3C
R177	A-3B
R178	A-3B
R179	B-3C
R180	B-3C
R181	A-3B
R182	A-2B
R183	B-4A
R184	A-5B
R185	A-3B
R186	B-3A
R188	A-5B
R190	A-3A
R201	A-3B
R202	A-3B
R203	A-4B
R204	A-4B
R205	A-3A
R207	A-3A
R208	A-3A

REF. No.	LOCATION
COIL	
L1	B-2B
L2	A-1A
L3	A-1A
L101	B-3C
L102	B-3C
L103	A-3A

REF. No.	LOCATION
BAND PASS FILTER	
BPF101	A-4A
BPF102	A-3A

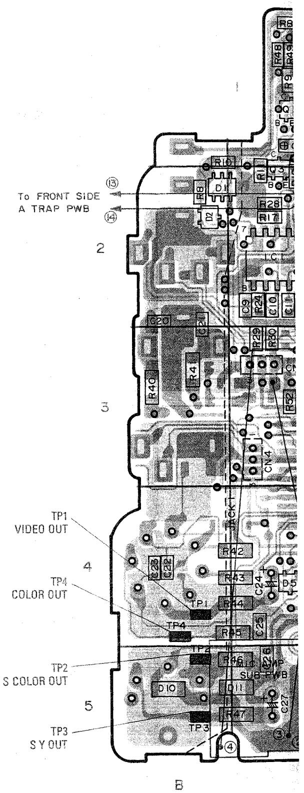
REF. No.	LOCATION
SWITCH	
SW1	A-5C
SW2	A-5C

REF. No.	LOCATION
CONNECTOR	
CN1	B-1A
CN2	B-2A
CN3	B-4A

REF. No.	LOCATION
CAPACITOR	
C1	A-1A
C2	A-1A
C3	A-1A
C4	B-1A
C5	B-1A
C6	B-2A
C7	A-1A
C8	A-2A
C9	B-1A
C10	A-2B
C11	A-1A
C12	A-1A
C13	A-1A
C14	B-2B
C101	A-3B
C102	B-3B
C103	B-3B
C104	B-3B
C105	B-3B
C106	A-3B
C107	B-3B
C108	B-3B
C109	B-3B
C110	B-3C
C111	A-4C
C112	B-3C
C113	A-4B
C114	A-4B
C115	B-4C
C116	A-4B
C117	A-4C
C118	B-4C
C119	B-4C
C120	B-4C
C121	B-4C
C122	A-4B
C124	B-4B
C125	B-4B
C126	A-4B
C127	B-4B
C128	B-4B
C129	B-4B
C130	B-4B
C131	A-4B
C132	B-5B
C134	A-4A
C135	B-4A
C137	A-4A
C138	B-4B
C139	A-4A
C140	A-4B
C141	A-3A
C142	B-4A
C143	B-4A
C144	B-3A
C145	A-3A
C146	B-3A
C148	B-3C
C149	B-3C
C152	A-3A
C153	A-3A
C154	B-3A
C155	B-2A
C156	A-3A
C157	A-4B
C158	B-3A
C159	A-3C
C160	B-3B
C161	B-3B
C162	A-3B
C163	A-2B
C171	B-3C

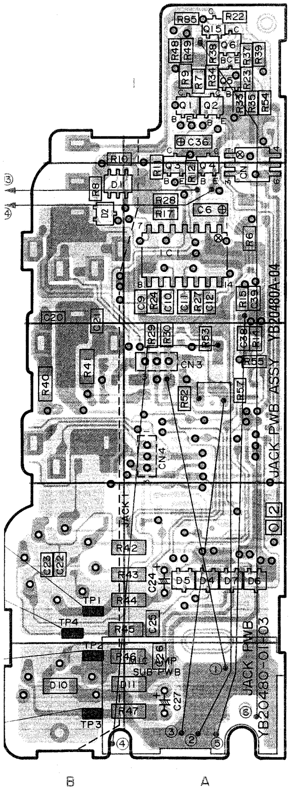
REF. No.	LOCATION
TEST PIN	
TP1	A-2A
TP2	A-2A
TP3	A-2A
TP4	A-2A
TP101	A-4A
TP102	A-5A
TP103	A-5B
TP104	A-3A
TP105	A-2A
TP106	A-2A
TP107	A-4A
TP108	A-3B

— CON

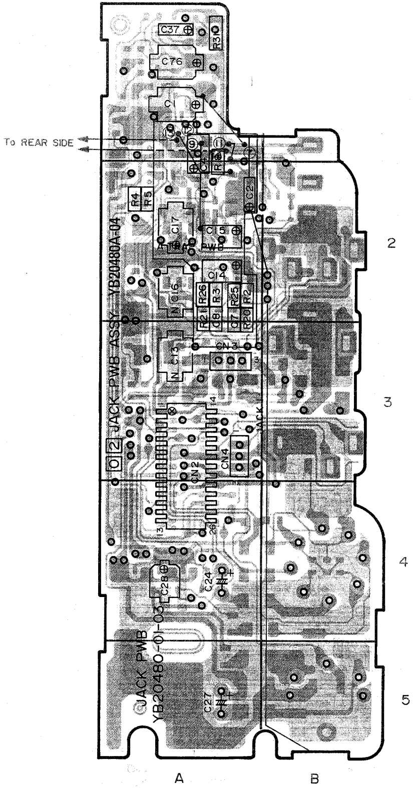


To FRONT SIDE
A TRAP PWB
⑬
⑭
2
3
4
5
TP1
VIDEO OUT
TP4
COLOR OUT
TP2
S COLOR OUT
TP3
S Y OUT
B

— CONDUCTOR SIDE — (B)


JACK PWB ASSY YB20480A-04
JACK PWB YB20480-01-03
MIC AMP SUB PWB
JACK
IC
CN1
CN3
CN4
TP1
TP2
TP3
TP4
R85
R22
Q15
Q6
Q1
Q2
C36
R10
D1
D2
R8
R28
R17
C6
R6
C9
R24
C10
C11
R27
C12
R15
C39
C20
C21
R29
R30
R53
C38
R55
R4
R40
R52
R57
R42
R43
R44
R45
R46
R47
D5
D4
D7
D6
D10
D11
C22
C23
C24
C25
C26
C27
③
④
②
⑤
①
⑥
B
A

— COMPONENT SIDE — (A)


To REAR SIDE
JACK PWB ASSY YB20480A-04
JACK PWB YB20480-01-03
A TRAP PWB
JACK
C37
C76
C1
C2
C4
C7
C8
C13
C14
C15
C16
C17
C24
C27
C28
R3
R4
R5
R18
R20
R21
R25
R26
R31
Q7
CN2
CN3
CN4
⑦
⑧
⑨
⑩
⑪
02
2
3
4
5
A
B

- Location of SMC parts

A-1D
Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC1	B-2A

REF. No.	LOCATION
TRANSISTOR	
Q1	B-1A
Q2	B-1A
Q3	B-1A
Q4	B-1A
Q5	B-1A
Q6	B-1A
Q15	B-1A

REF. No.	LOCATION
DIODE	
D1	B-2B
D2	B-2B
D4	B-4A
D5	B-4A
D6	B-4A
D7	B-4A
D10	B-5B
D11	B-5B

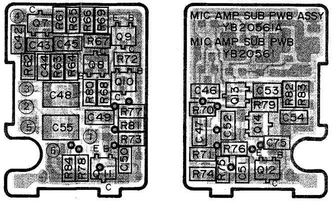
REF. No.	LOCATION
RESISTOR	
R2	A-2A
R3	A-2A
R4	A-2A
R5	A-2A
R6	B-2A
R7	B-1A
R8	B-2B
R9	B-1A
R10	B-1B
R11	B-2A
R12	B-2A
R14	B-3A
R15	B-2A
R17	B-2A
R18	A-1A
R20	A-2A
R21	A-2A
R22	B-1A
R23	B-1A
R24	B-2A
R25	A-2A
R26	A-2A
R27	B-2A
R28	B-2A
R29	B-3A
R30	B-3A
R31	A-1A
R33	B-1A
R34	B-1A
R35	B-1A
R37	B-1A
R38	B-1A
R39	B-1A
R40	B-3B
R41	B-3B
R42	B-4A
R43	B-4A
R44	B-4A
R45	B-4A
R46	B-5A
R47	B-5A
R48	B-1A
R49	B-1A
R52	B-3A
R53	B-3A
R54	B-1A
R55	B-3A
R57	B-3A
R85	B-1A

REF. No.	LOCATION
CAPACITOR	
C1	A-1A
C2	A-2A
C4	A-1A
C6	B-2A
C7	A-2A
C8	A-2A
C9	B-2A
C10	B-2A
C11	B-2A
C12	B-2A
C13	A-3A
C14	A-2A
C15	A-2A
C16	A-2A
C17	A-2A
C20	B-2B
C21	B-2B
C22	B-4B
C23	B-4B
C25	B-4A
C26	B-5A
C28	A-4A
C36	B-1A
C37	A-1A
C38	B-3A
C39	B-2A
C76	A-1A

REF. No.	LOCATION
TEST PIN	
TP1	B-4B
TP2	B-5B
TP3	B-5B
TP4	B-4B

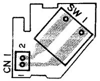
REF. No.	LOCATION
CONNECTOR	
CN1	B-1A
CN2	A-3A

— MIC AMP SUB —


MIC AMP SUB PWB ASSY YB20561A
MIC AMP SUB PWB YB20561
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
C42
C43
C44
C45
C46
C47
C48
C49
C50
C51
C52
C53
C54
C55
C75
R61
R62
R63
R64
R65
R66
R67
R68
R69
R70
R71
R72
R73
R74
R75
R76
R77
R78
R79
R80
R81
R82
R83
R84
④
③
②
⑤
⑥

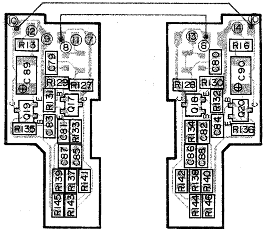
MIC AMP SUB PWB ASSY
YB20561A
MIC AMP SUB PWB
YB20561

— TRIGGER —



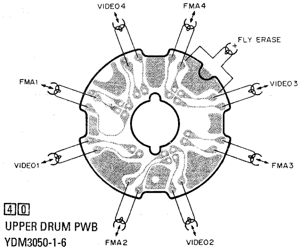
05 TRIGGER PWB ASSY YB20360A-01
TRIGGER PWB YB20360-01-01

— A TRAP —


R13
C89
C79
R129
R127
Q19
R131
Q17
R135
C83
C81
R133
C87
C85
R139
R137
R141
R145
R143
R16
C90
C80
R128
R130
Q18
R132
Q20
R134
C84
R136
C86
C82
C88
R142
R138
R140
R144
R146
⑩
⑫
⑧
⑨
⑪
⑦
⑬
⑭

A TRAP PWB ASSY
YB20570A
A TRAP PWB
YB20570

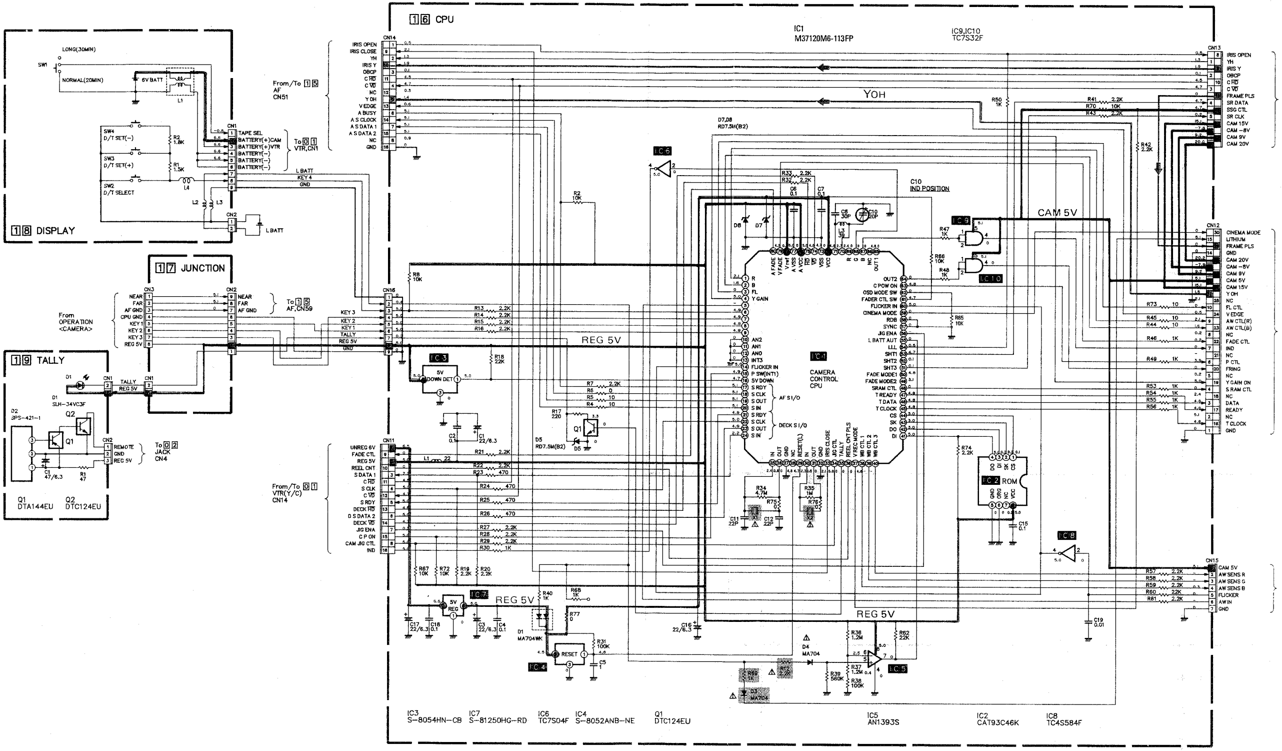
— UPPER DRUM —


VIDEO4
FMA4
FLY ERASE
VIDEO3
FMA1
VIDEO1
FMA3
FMA2
VIDEO2

40
UPPER DRUM PWB
YDM3050-1-6

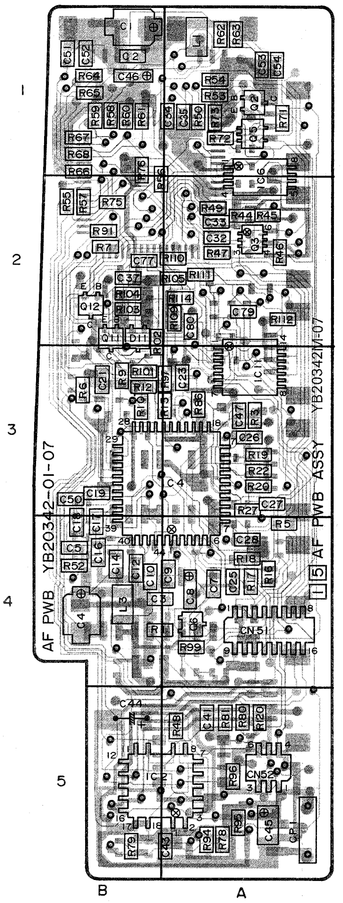
5.23 CPU, DISPLAY, JUNCTION & TALLY SCHEMATIC DIAGRAMS

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
- Voltage : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.
- SIGNAL PATH ⇐ Y

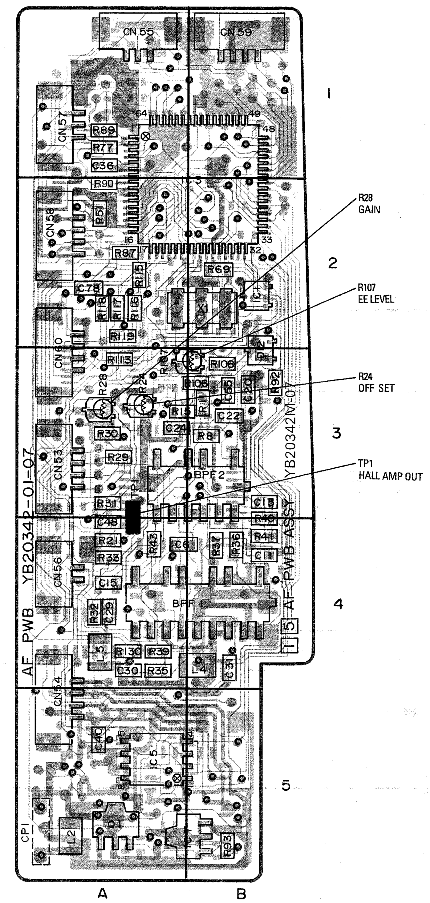

16 CPU
18 DISPLAY
17 JUNCTION
19 TALLY
IC1 M37120M6-113FP
IC9,IC10 TC7S32F
CAMERA CONTROL CPU
YOH
CAM 5V
REG 5V
IND POSITION
ROM
RESET
5V DOWN DET
5V REG
From/To 15 AF CN51
To 01 VTR,CN1
From/To 15 AF,CN59
From OPERATION <CAMERA>
From/To 01 VTR(Y/C) CN14
To 02 JACK CN4
From/To 12 SSG CN203
From/To 13 VIDEO CN302
From/To AUTO WHITE SENSOR
LONG(30MIN)
NORMAL(20MIN)
6V BATT
SW1
SW4 D/T SET(−)
SW3 D/T SET(+)
SW2 D/T SELECT
TAPE SEL
BATTERY(+)CAM
BATTERY(+)VTR
BATTERY(−)
L BATT
KEY 4
GND
NEAR
FAR
AF GND
CPU GND
KEY 1
KEY 2
KEY 3
REG 5V
TALLY
REMOTE
D1 SLH-34VC3F
D2 SPS-421-1
Q1 DTA144EU
Q2 DTC124EU
IRIS OPEN
IRIS CLOSE
YH
IRIS Y
OBCP
C HD
C VD
NC
Y OH
V EDGE
A BUSY
A S CLOCK
A S DATA 1
A S DATA 2
UNREG 6V
FADE CTL
REEL CNT
S DATA 1
S CLK
S RDY
DECK HD
D S DATA 2
DECK VD
JIG ENA
C P ON
CAM JIG CTL
IND
FRAME PLS
SR DATA
SSG CTL
SR CLK
CAM 15V
CAM −8V
CAM 9V
CAM 20V
CINEMA MODE
LITHIUM
AW CTL(R)
AW CTL(B)
FADE CTL
P CTL
FRING
Y GAIN ON
S.RAM CTL
DATA
READY
T CLOCK
AW SENS R
AW SENS G
AW SENS B
FLICKER
AW IN
IC3 S-8054HN-CB
IC7 S-81250HG-RD
IC6 TC7S04F
IC4 S-8052ANB-NE
Q1 DTC124EU
IC5 AN1393S
IC2 CAT93C46K
IC8 TC4S584F
D5 RD7.5M(B2)
D7,D8 RD7.5M(B2)
D1 MA704WK
D4 MA704
D3 MA704

5.22 AF CIRCUIT BOARD

— CONDUCTOR SIDE —
(B)



— COMPONENT SIDE —
(A)



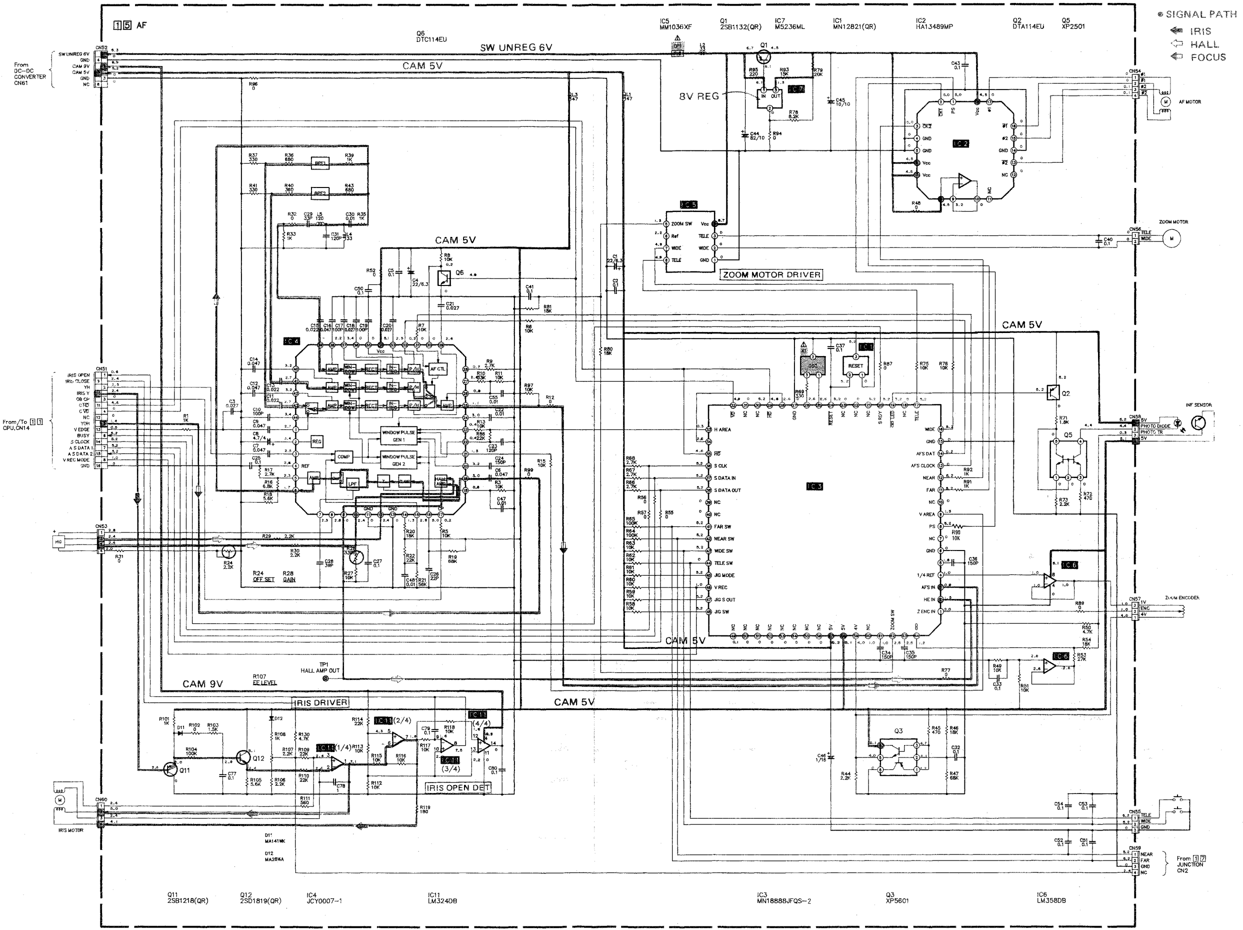
- Location of SMC parts

A-1D — Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF No.	LOCATION
IC	
IC1	A-2B
IC2	B-5B
IC3	A-2B
IC4	B-3A
IC5	A-5A
IC6	B-1A
IC7	A-5B
IC11	B-3A
TRANSISTOR	
Q1	A-5A
Q2	B-1A
Q3	B-2A
Q5	B-1A
Q6	B-4A
Q11	B-2B
Q12	B-2B
DIODE	
D11	B-2B
D12	A-2B
RESISTOR	
R1	B-4B
R3	B-3A
R5	B-4A
R6	B-3B
R7	B-2B
R8	A-3B
R9	B-3B
R10	B-3B
R11	A-3B
R12	B-3B
R13	B-3A
R15	A-3A
R16	B-4A
R17	B-4A
R18	B-4A
R19	B-3A
R20	B-3A
R21	A-4A
R22	B-3A
R24	A-3A
R27	B-3A
R28	A-3A
R29	A-3A
R30	A-3A
R31	A-3A
R32	A-4A
R33	A-4A
R35	A-4A
R36	A-4B
R37	A-4B
R39	A-4A
R40	A-4B
R41	A-4B
R43	A-3A
R44	B-2A
R45	B-2A
R46	B-2A
RESISTOR	
R47	B-2A
R48	B-5A
R49	B-2A
R50	B-1A
R51	A-2A
R52	B-4B
R53	B-1A
R54	B-1A
R55	B-2B
R56	B-1B
R57	B-2B
R58	B-1B
R59	B-1B
R60	B-1B
R61	B-1B
R62	B-1A
R63	B-1A
R64	B-1B
R65	B-1B
R66	B-1B
R67	B-1B
R68	B-1B
R69	A-2B
R71	B-1A
R72	B-1A
R73	B-1A
R75	B-2B
R76	B-1A
R77	A-1A
R78	B-5A
R79	B-5B
R80	B-5A
R81	B-5A
R86	B-3A
R87	A-2A
R89	A-1A
R90	A-2A
R91	B-2B
R92	A-3B
R93	A-5B
R94	B-5A
R95	B-5A
R96	B-5A
R97	B-3A
R99	B-4A
R101	B-3B
R102	B-2B
R103	B-2B
R104	B-2B
R105	B-2A
R106	A-3B
R107	A-3B
R108	A-3B
R109	B-2A
R110	B-2A
R111	B-2A
R112	B-2A
R113	A-3A
R114	B-2A
R115	A-2A
R116	A-2A
R117	A-2A
R118	A-2A
R119	A-2A
R120	B-5A
R130	A-4A
CAPACITOR	
C1	B-1B
C2	B-1B
C3	B-4B
C4	B-4B
C5	B-4B
C6	A-4B
C7	B-4A
C8	B-4A
C9	B-4A
C10	B-4B
C11	A-4B
C12	B-4B
C13	A-3B
C14	B-4B
C15	A-4A
C16	B-4B
C17	B-4B
C18	B-4B
C19	B-3B
C20	A-3B
C21	B-3B
C22	A-3B
C23	B-3A
C24	A-3A
C25	B-4A
C26	B-3A
C27	B-3A
C28	B-4A
C29	A-4A
C30	A-4A
C31	A-4B
C32	B-2A
C33	B-2A
C34	B-1A
C35	B-1A
C36	A-1A
C37	B-2B
C40	A-5A
C41	B-5A
C43	B-5A
C45	B-5A
C46	B-1B
C47	B-3A
C48	A-4A
C50	B-3B
C51	B-1B
C52	B-1B
C53	B-1A
C54	B-1A
C55	A-3B
C77	B-2B
C78	A-2A
C79	B-2A
C80	B-2A
COIL	
L1	B-1A
L2	A-5A
L3	B-4B
L4	A-4B
L5	A-4A
BAND PASS FILTER	
BPF1	A-4B
BPF2	A-3B
RESONATOR	
X1	A-2B
TEST PIN	
TP1	A-3A
CONNECTOR	
CN51	B-4A
CN52	B-5A
CN53	A-3A
CN54	A-5A
CN55	A-1A
CN56	A-4A
CN57	A-1A
CN58	A-2A
CN59	A-1B
CN60	A-3A

5.21 AF SCHEMATIC DIAGRAM

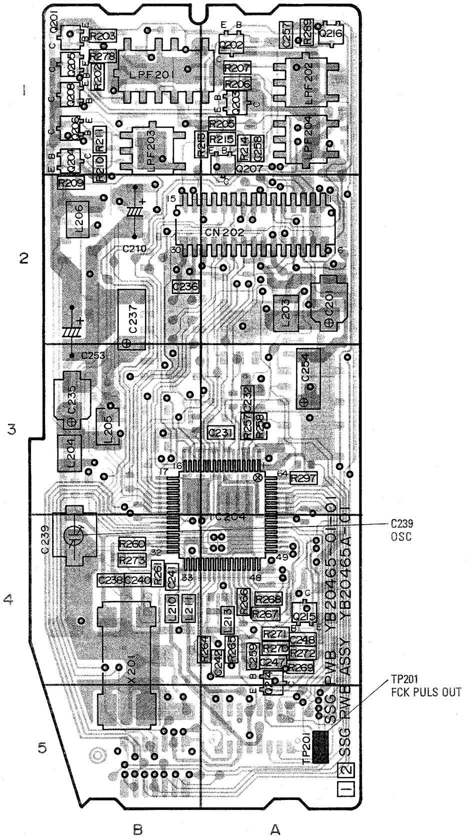
- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
- Voltage : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.



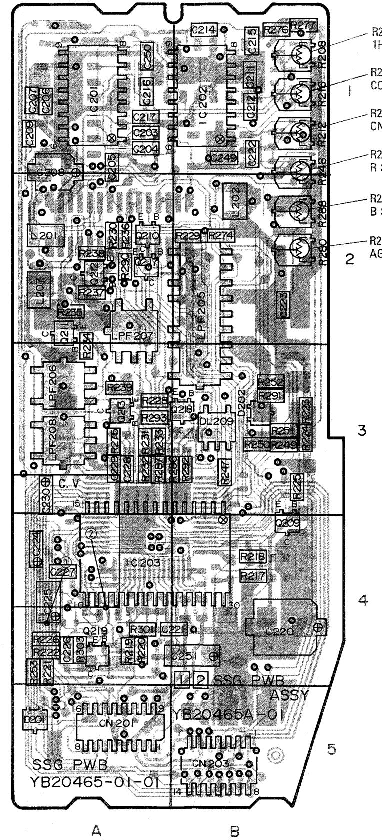
1 5 AF
SIGNAL PATH
IRIS
HALL
FOCUS
SW UNREG 6V
CAM 5V
CAM 9V
8V REG
ZOOM MOTOR DRIVER
IRIS DRIVER
IRIS OPEN DET
From DC-DC CONVERTER CN61
From/To 1 1 CPU,CN14
From 1 7 JUNCTION CN2
AF MOTOR
ZOOM MOTOR
INF SENSOR
ZOOM ENCODER
IRIS MOTOR
TP1 HALL AMP OUT
R107 EE LEVEL
R24 OFF SET
R28 GAIN
IC5 MM1036XF
Q1 2SB1132(QR)
IC7 M5236ML
IC1 MN12821(QR)
IC2 HA13489MP
Q2 DTA114EU
Q5 XP2501
Q6 DTC114EU
Q11 2SB1218(QR)
Q12 2SD1819(QR)
IC4 JCY0007-1
IC11 LM324DB
IC3 MN18888JFQS-2
Q3 XP5601
IC6 LM358DB
D11 MA141WK
D12 MA28WA
CN52
CN51
CN53
CN60
CN54
CN56
CN58
CN57
CN55
CN59
SW UNREG 6V
GND
CAM 9V
CAM 5V
NC
IRIS OPEN
IRIS CLOSE
YH
IRIS Y
OB CP
V EDGE
BUSY
S CLOCK
A S DATA 1
A S DATA 2
V REC MODE
WINDOW PULSE GEN 1
WINDOW PULSE GEN 2
COMP
REG
LPF
BPF1
BPF2
AF CTL
RESET
OSC
H AREA
S CLK
S DATA IN
S DATA OUT
FAR SW
NEAR SW
WIDE SW
TELE SW
JIG MODE
V REC
JIG S OUT
JIG SW
AFS DAT
AFS CLOCK
NEAR
FAR
V AREA
1/4 REF
AFS IN
HE IN
Z ENC IN
ZOOM SW
TELE
WIDE
PHOTO DIODE
PHOTO TR
ENC

5.20 SSG CIRCUIT BOARD

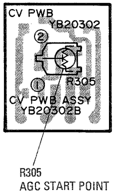
— CONDUCTOR SIDE —
(B)


C239
OSC
TP201
FCK PULS OUT
IC204
CN202
X201
SSG PWB YB20465-01-01
SSG PWB ASSY YB20465A-01
1
2
3
4
5
B
A

— COMPONENT SIDE —
(A)


R208
1H DL SIG LEVEL
R216
COLOR DET BAL
R212
CNR BALANCE
R248
R SEPA
R288
B SEPA
R280
AGC LEVEL
IC201
IC202
IC203
CN201
CN203
C.V
SSG PWB ASSY YB20465A-01
SSG PWB YB20465-01-01
1
2
3
4
5
A
B

— C.V —


CV PWB
YB20302
CV PWB ASSY
YB20302B
R305
R305
AGC START POINT

- Location of SMC parts

A-1D
 └ Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

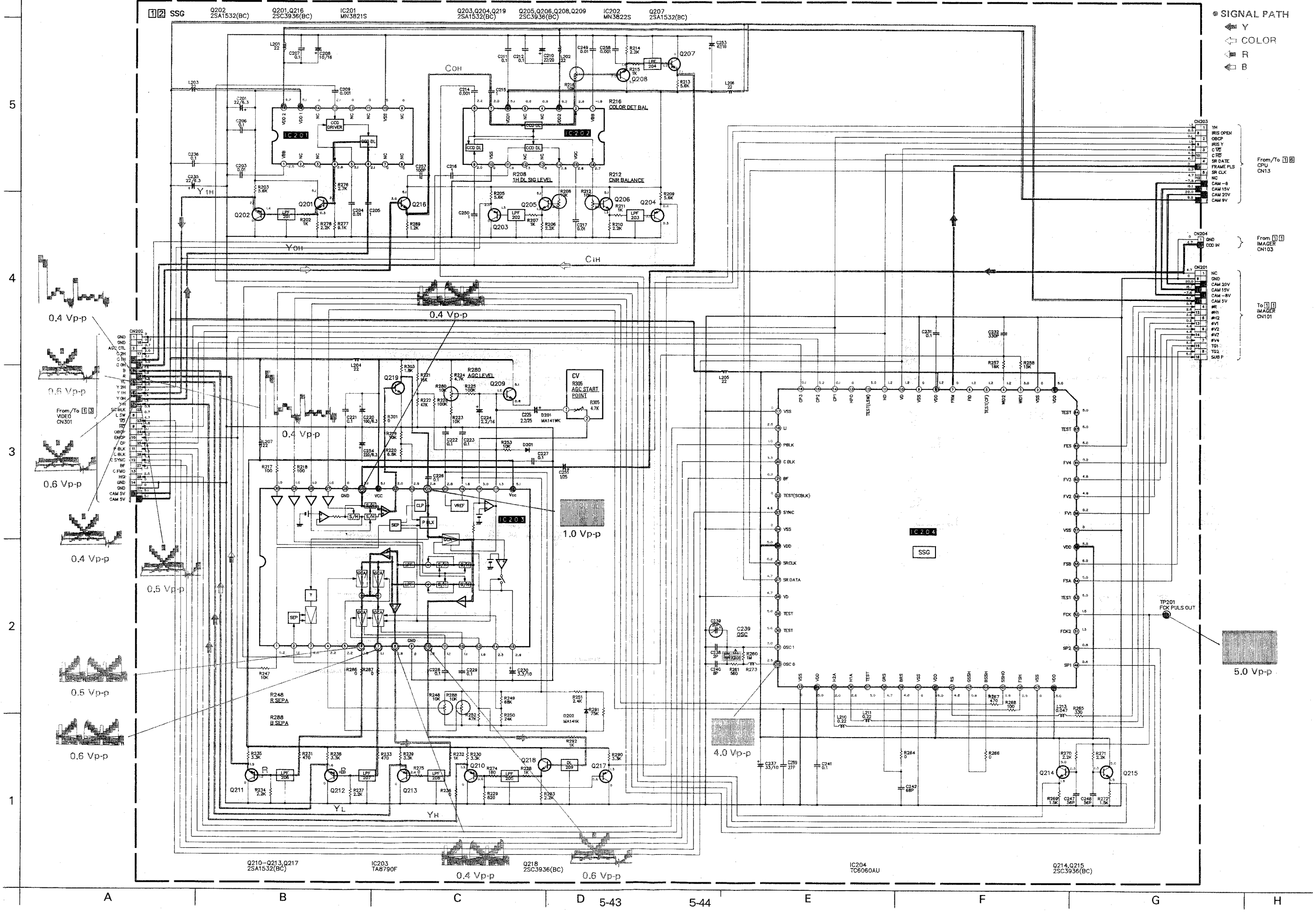
REF. No.	LOCATION
IC	
IC201	A-1A
IC202	A-1B
IC203	A-4A
IC204	B-3A
TRANSISTOR	
Q201	B-1B
Q202	B-1A
Q203	B-1A
Q204	B-1B
Q205	B-1B
Q206	B-1B
Q207	B-1A
Q208	B-1B
Q209	A-4B
Q210	A-2A
Q211	A-2A
Q212	A-2A
Q213	A-3A
Q214	B-4A
Q215	B-4A
Q216	B-1A
Q217	A-2A
Q218	A-3B
Q219	A-4A
DIODE	
D201	A-5A
D202	A-3B
RESISTOR	
R202	B-1B
R203	B-1B
R205	B-1A
R206	B-1A
R207	B-1A
R208	A-1B
R209	B-2B
R210	B-1B
R211	B-1B
R212	A-1B
R213	B-1A
R214	B-1A
R215	B-1A
R216	A-1B
R217	A-4B
R218	A-4B
R219	A-4A
R220	A-4A
R221	A-4A
R222	A-4A
R223	A-4A
R224	A-3B
R225	A-3B
R226	A-4A
R228	A-3A
R229	A-2B
R230	A-2A
R231	A-3A
R232	A-3A
R233	A-3A
R234	A-2A
R235	A-2A
R236	A-2A
R237	A-2A
R238	A-2A
R239	A-3A
R247	A-3B
R248	A-1B
R249	A-3B
R250	A-3B
R251	A-3B
R252	A-3B
R253	A-4A
R257	B-3A
R258	B-3A
R259	B-3A
R260	B-4B
R261	B-4B
R264	B-4A
RESISTOR	
R265	B-4A
R266	B-4A
R267	B-4A
R268	B-4A
R269	B-4A
R270	B-4A
R271	B-4A
R272	B-4A
R273	B-4B
R274	A-2B
R275	A-3A
R276	A-1B
R277	A-1B
R278	B-1B
R280	A-2B
R286	A-3B
R287	A-3A
R288	A-2B
R289	B-1A
R290	A-2A
R291	A-3B
R292	A-3B
R293	A-3A
R301	A-4A
R303	A-4A
CAPACITOR	
C201	B-2A
C203	A-1A
C204	A-1A
C205	A-1A
C206	A-1A
C207	A-1A
C208	A-1A
C209	A-1A
C210	B-2B
C211	A-1B
C212	A-1B
C214	A-1B
C215	A-1B
C216	A-1A
C217	A-1A
C220	A-4B
C221	A-4B
C222	A-1B
C223	A-2B
C224	A-4A
C225	A-4A
C226	A-4A
C227	A-4A
C228	A-3A
C229	A-3A
C230	A-3A
C231	B-3A
C232	B-3A
C235	B-3B
C236	B-2B
C237	B-2B
C238	B-4B
C239	B-4B
C240	B-4B
C241	B-4B
C242	B-4A
C247	B-4A
C248	B-4A
C249	A-1B
C250	A-1A
C251	A-4B
C253	B-2B
C254	B-3A
C257	B-1A
C258	B-1A
C259	B-4A
COIL	
L201	A-2A
L202	A-2B
L203	B-2A
L204	B-3B
L205	B-3B
L206	B-2B
L207	A-2A
L210	B-4B
L211	B-4B
L212	B-4A
L213	B-4A
LOW PASS FILTER	
LPF201	B-1B
LPF202	B-1A
LPF203	B-1B
LPF204	B-1A
LPF205	A-2B
LPF206	A-3A
LPF207	A-2A
LPF208	A-3A
LPF209	A-2B
DELAY LINE	
DL209	A-3B
CRYSTAL	
X201	B-4B
TEST PIN	
TP201	B-5A
CONNECTOR	
CN201	A-5A
CN202	B-2A
CN203	A-5B

5.19 SSG SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

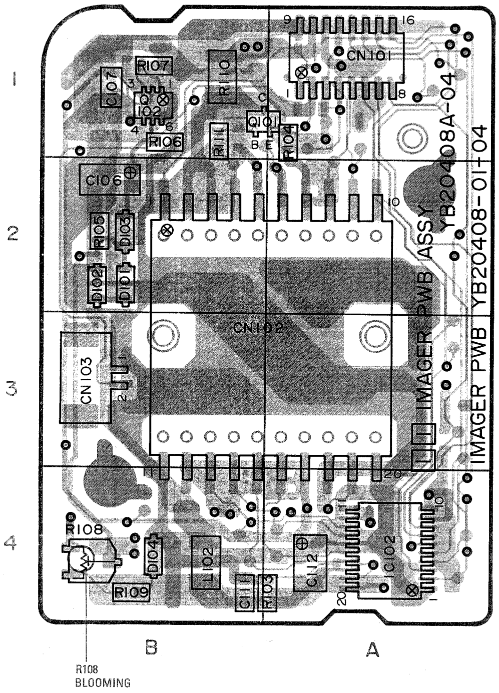
- Voltage : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.

- Waveform : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.

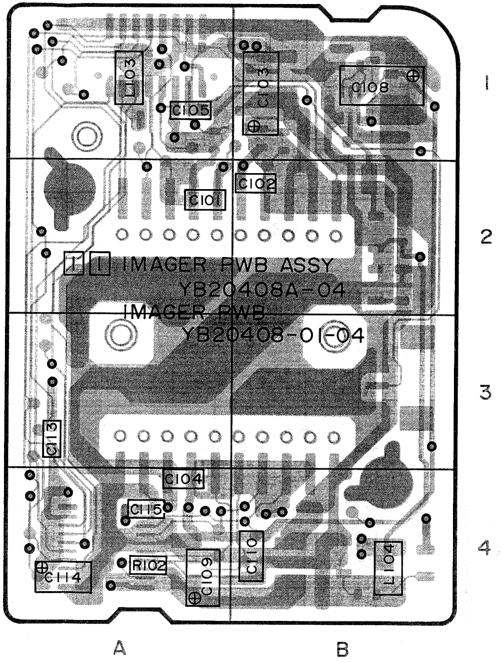

1 2 SSG
Q202 2SA1532(BC)
Q201,Q216 2SC3936(BC)
IC201 MN3821S
Q203,Q204,Q219 2SA1532(BC)
Q205,Q206,Q208,Q209 2SC3936(BC)
IC202 MN3822S
Q207 2SA1532(BC)
SIGNAL PATH
Y
COLOR
R
B
IC201
IC202
IC203
IC204
SSG
CCD DRIVER
CCD DL
COH
YOH
CIH
Y1H
YL
YH
R216 COLOR DET BAL
R208 1H DL SIG LEVEL
R212 CNR BALANCE
R280 AGC LEVEL
CV R305 AGC START POINT
R248 R SEPA
R288 B SEPA
TP201 FCK PULS OUT
C239 OSC
CN203
YH
IRIS OPEN
OBCP
IRIS Y
C VD
C HD
SR DATE
FRAME PLS
SR CLK
NC
CAM −8
CAM 15V
CAM 20V
CAM 9V
From/To 1 6 CPU CN13
CN204
GND
CCD IN
From 1 1 IMAGER CN103
CN201
NC
GND
CAM 20V
CAM 15V
CAM −8V
CAM 5V
ϕR
ϕH1
ϕH2
ϕV1
ϕV2
ϕV3
ϕV4
TG1
TG2
SUB P
To 1 1 IMAGER CN101
CN202
GND
GND
AGC CTL
C 2H
C 1H
C 0H
B
R
YL
Y 2H
Y 1H
Y 0H
YH
SC BLK
L SW
VD
HD
OBCP
ENCP
CP
P BLK
C BLK
C SYNC
BF
C FMO
HGI
GND
GND
CAM 5V
CAM 5V
From/To 1 3 VIDEO CN301
0.4 Vp-p
0.6 Vp-p
0.6 Vp-p
0.4 Vp-p
0.5 Vp-p
0.5 Vp-p
0.6 Vp-p
0.4 Vp-p
0.4 Vp-p
1.0 Vp-p
4.0 Vp-p
5.0 Vp-p
0.4 Vp-p
0.6 Vp-p
Q210–Q213,Q217 2SA1532(BC)
IC203 TA8790F
Q218 2SC3936(BC)
IC204 TC6060AU
Q214,Q215 2SC3936(BC)
6
5
4
3
2
1
A
B
C
D
E
F
G
H

5.18 IMAGER CIRCUIT BOARD

— CONDUCTOR SIDE —
(B)


1
2
3
4
9
16
CN101
1
8
R107
C107
3
Q
102
4
6
R106
R110
R111
C
Q101
B E
R104
C106
R105
D103
D102
D101
10
CN102
CN103
2
IMAGER PWB ASSY
YB20408A-04
IMAGER PWB
YB20408-01-04
20
R108
D104
L102
C111
R103
C112
IC102
R109
B
A
R108
BLOOMING

— COMPONENT SIDE —
(A)


L103
C105
C103
C108
1
2
3
4
C101
C102
IMAGER PWB ASSY
YB20408A-04
IMAGER PWB
YB20408-01-04
C113
C104
C115
R102
C114
C109
C110
L104
A
B

• Location of SMC parts

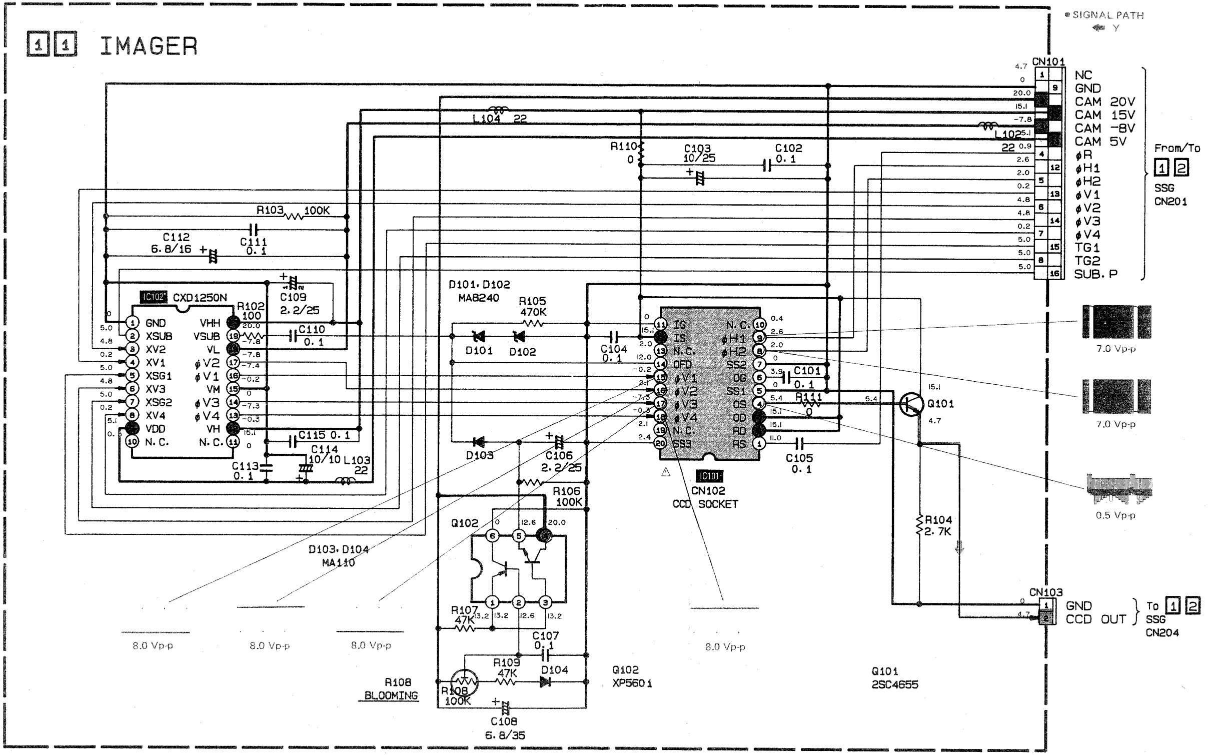
A-1D
Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF. No.	LOCATION
CAPACITOR	
C101	A-2A
C102	A-2B
C103	A-1B
C104	A-4A
C105	A-1A
C106	B-2B
C107	B-1B
C108	A-1B
C109	A-4A
C110	A-4B
C111	B-4B
C112	B-4A
C113	A-3A
C114	A-4A
C115	A-4A
COIL	
L102	B-4B
L103	A-1A
L104	A-4B
CONNECTOR	
CN101	B-1A
CN102	B-3B
CN103	B-3B

REF. No.	LOCATION	REF. No.	LOCATION	REF. No.	LOCATION
IC		**DIODE**		**RESISTOR**	
IC102	B-4A	D101	B-2B	R102	A-4A
		D102	B-2B	R103	B-4A
		D103	B-2B	R104	B-1A
		D104	B-4B	R105	B-2B
TRANSISTOR				R106	B-1B
Q101	B-1B			R107	B-1B
Q102	B-1B			R108	B-4B
				R109	B-4B
				R110	B-1B
				R111	B-1B

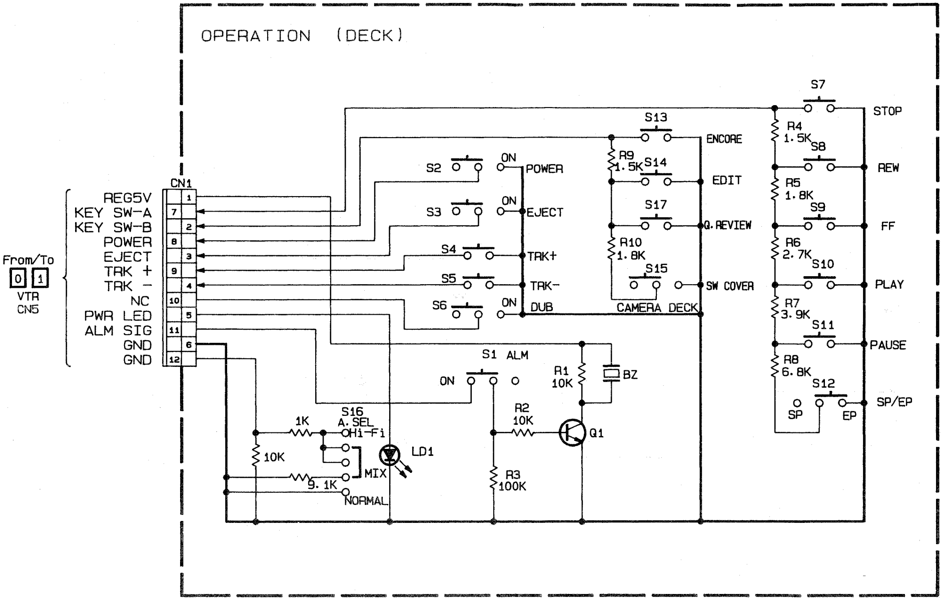
5.17 IMAGER SCHEMATIC DIAGRAM

- Voltage : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.
- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
- Waveform : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.


1 1 IMAGER
SIGNAL PATH
Y
CN101
NC
GND
CAM 20V
CAM 15V
CAM -8V
CAM 5V
φR
φH1
φH2
φV1
φV2
φV3
φV4
TG1
TG2
SUB. P
From/To 1 2 SSG CN201
L104 22
L102 22
R110 0
C103 10/25
C102 0.1
R103 100K
C112 6.8/16
C111 0.1
C109 2.2/25
IC102 CXD1250N
R102 100
C110 0.1
GND
XSUB
XV2
XV1
XSG1
XV3
XSG2
XV4
VDD
N.C.
VHH
VSUB
VL
φV2
φV1
VM
φV3
φV4
VH
N.C.
C115 0.1
C114 10/10
L103 22
C113 0.1
D101. D102 MA8240
R105 470K
D101
D102
C104 0.1
D103
C106 2.2/25
R106 100K
IC101 CN102 CCD SOCKET
IG
IS
N.C.
OFD
φV1
φV2
φV3
φV4
N.C.
SS3
N.C.
φH1
φH2
SS2
OG
SS1
OS
OD
RD
RS
C101 0.1
R111 0
C105 0.1
Q101
R104 2.7K
7.0 Vp-p
7.0 Vp-p
0.5 Vp-p
CN103
GND
CCD OUT
To 1 2 SSG CN204
Q102
D103. D104 MA110
R107 47K
C107 0.1
R109 47K
D104
R108 BLOOMING
R108 100K
C108 6.8/35
Q102 XP5601
Q101 2SC4655
8.0 Vp-p
8.0 Vp-p
8.0 Vp-p
8.0 Vp-p

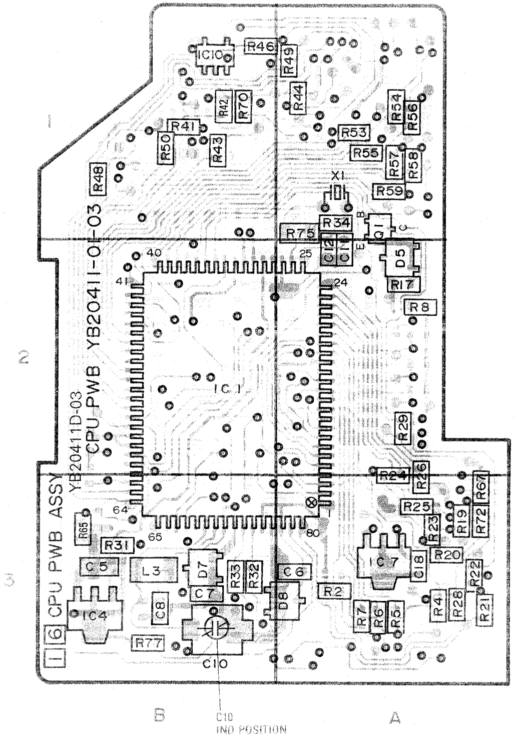
5.16 OPERATION (DECK) SCHEMATIC DIAGRAM

Note:
This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


OPERATION (DECK)
From/To
0 1
VTR
CN5
CN1
REG5V
KEY SW-A
KEY SW-B
POWER
EJECT
TRK +
TRK −
NC
PWR LED
ALM SIG
GND
GND
1
7
2
8
3
9
4
10
5
11
6
12
S2
ON
POWER
S3
ON
EJECT
S4
TRK+
S5
TRK−
S6
ON
DUB
S13
ENCORE
R9
1.5K
S14
EDIT
S17
Q.REVIEW
R10
1.8K
S15
SW COVER
CAMERA DECK
S7
STOP
R4
1.5K
S8
REW
R5
1.8K
S9
FF
R6
2.7K
S10
PLAY
R7
3.9K
S11
PAUSE
R8
6.8K
S12
SP/EP
SP
EP
S1 ALM
ON
R1
10K
BZ
R2
10K
Q1
R3
100K
S16
A.SEL
1K
Hi-Fi
10K
LD1
MIX
9.1K
NORMAL

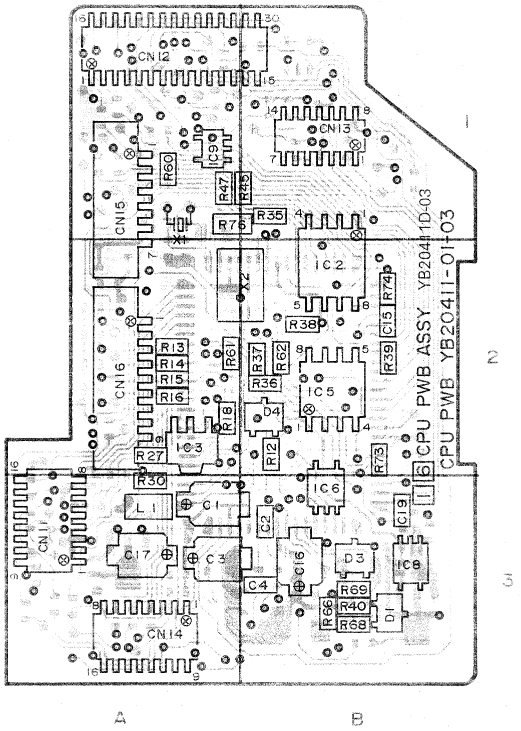
5.24 CPU, DISPLAY, JUNCTION & TALLY CIRCUIT BOARDS

— CONDUCTOR SIDE —
(B)



IC10
R46
R49
R44
R42
R70
R41
R50
R43
R48
R53
R54
R56
R55
R57
R58
X1
R59
R34
R75
C12
C11
Q1
D5
R17
R8
IC1
40
41
25
24
64
65
80
R29
R24
R26
R25
R23
R19
R72
R67
R65
R31
C5
L3
D7
R33
R32
C6
D8
C7
C8
IC4
R77
C10
IC7
C18
R20
R2
R7
R6
R5
R4
R28
R22
R21
YB20411D-03
CPU PWB YB20411-01-03
YB CPU PWB ASSY
1
2
3
B
A
C10
IND POSITION

— COMPONENT SIDE —
(A)



16
30
CN12
15
14
CN13
8
7
1
IC9
CN15
R60
R47
R45
R35
R76
X1
X2
IC2
R74
5
8
C15
R38
R39
CN16
R13
R14
R15
R16
R61
R37
R62
R36
IC5
D4
R18
IC3
R12
R73
R27
R30
CN11
IC6
C19
L1
C1
C2
C17
C3
C16
D3
IC8
C4
R69
R66
R40
R68
D1
CN14
9
YB20411D-03
CPU PWB ASSY YB20411D-03
CPU PWB YB20411-01-03
1
2
3
A
B

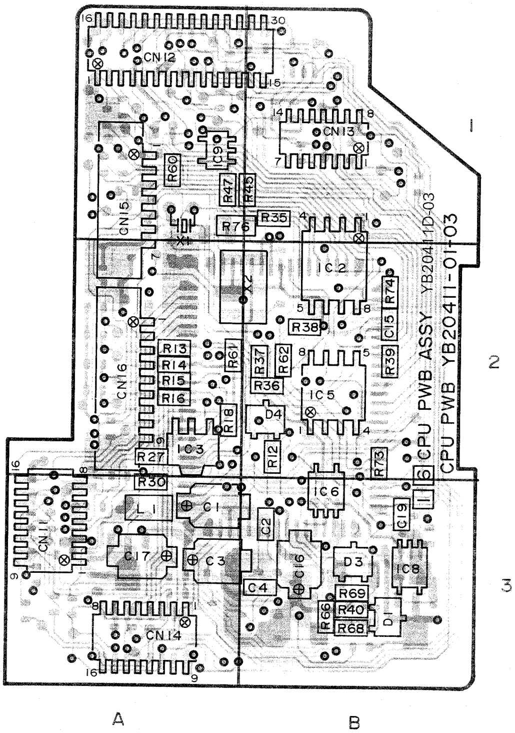
* Location of SMC parts

A-1D
- Location
- A : COMPONENT SIDE
- B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC1	B-2B
IC2	A-2B
IC3	A-2A
IC4	B-3B
IC5	A-2B
IC6	A-3B
IC7	B-3A
IC8	A-3B
IC9	A-1A
IC10	B-1B
TRANSISTOR	
Q1	B-1A
DIODE	
D1	A-3B
D3	A-3B
D4	A-2B
D5	B-2A
D7	B-3B
D8	B-3A
RESISTOR	
R2	B-3A
R4	B-3A
R5	B-3A
R6	B-3A
R7	B-3A
R8	B-2A
R12	A-2B
R13	A-2A
R14	A-2A
R15	A-2A
R16	A-2A
R17	B-2A
R18	A-2A
R19	B-3A
R20	B-3A
R21	B-3A
R22	B-3A
R23	B-3A
R24	B-2A
R25	B-3A
R26	B-2A
R27	A-2A
R28	B-3A
R29	B-2A
R30	A-3A
R31	B-3B
R32	B-3B
R33	B-3B
R34	B-1A

REF. No.	LOCATION
RESISTOR	
R35	A-1B
R36	A-2B
R37	A-2B
R38	A-2B
R39	A-2B
R40	A-3B
R41	B-1B
R42	B-1B
R43	B-1B
R44	B-1A
R45	A-1B
R46	B-1B
R47	A-1A
R48	B-1B
R49	B-1A
R50	B-1B
R53	B-1A
R54	B-1A
R55	B-1A
R56	B-1A
R57	B-1A
R58	B-1A
R59	B-1A
R60	A-1A
R61	A-2A
R62	A-2B
R65	B-3B
R66	A-3B
R67	B-3A
R68	A-3B
R69	A-3B
R70	B-1B
R72	B-3A
R73	A-2B
R74	A-2B
R75	B-1A
R76	A-1A
R77	B-3B

— COMPONENT SIDE — (A)

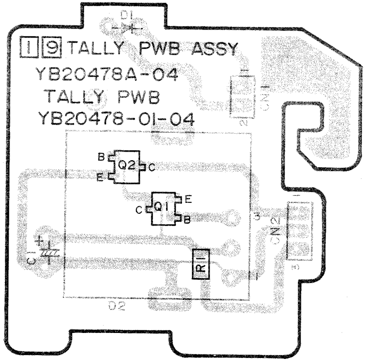

1
2
3
A
B
16 CPU PWB ASSY YB20411D-03
CPU PWB YB20411-01-03
CN12
CN13
CN15
CN16
CN11
CN14
IC2
IC3
IC5
IC6
IC8
IC9
X1
X2
R13
R14
R15
R16
R27
R30
R35
R36
R37
R38
R39
R40
R47
R45
R60
R61
R62
R66
R68
R69
R73
R74
R76
R12
R18
L1
C1
C2
C3
C4
C15
C16
C17
C19
D1
D3
D4

• Location of SMC parts

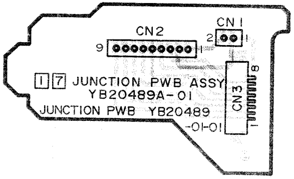
A-1D — Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC1	B-2B
IC2	A-2B
IC3	A-2A
IC4	B-3B
IC5	A-2B
IC6	A-3B
IC7	B-3A
IC8	A-3B
IC9	A-1A
IC10	B-1B
TRANSISTOR	
Q1	B-1A
DIODE	
D1	A-3B
D3	A-3B
D4	A-2B
D5	B-2A
D7	B-3B
D8	B-3A
RESISTOR	
R2	B-3A
R4	B-3A
R5	B-3A
R6	B-3A
R7	B-3A
R8	B-2A
R12	A-2B
R13	A-2A
R14	A-2A
R15	A-2A
R16	A-2A
R17	B-2A
R18	A-2A
R19	B-3A
R20	B-3A
R21	B-3A
R22	B-3A
R23	B-3A
R24	B-2A
R25	B-3A
R26	B-2A
R27	A-2A
R28	B-3A
R29	B-2A
R30	A-3A
R31	B-3B
R32	B-3B
R33	B-3B
R34	B-1A
RESISTOR	
R35	A-1B
R36	A-2B
R37	A-2B
R38	A-2B
R39	A-2B
R40	A-3B
R41	B-1B
R42	B-1B
R43	B-1B
R44	B-1A
R45	A-1B
R46	B-1B
R47	A-1A
R48	B-1B
R49	B-1A
R50	B-1B
R53	B-1A
R54	B-1A
R55	B-1A
R56	B-1A
R57	B-1A
R58	B-1A
R59	B-1A
R60	A-1A
R61	A-2A
R62	A-2B
R65	B-3B
R66	A-3B
R67	B-3A
R68	A-3B
R69	A-3B
R70	B-1B
R72	B-3A
R73	A-2B
R74	A-2B
R75	B-1A
R76	A-1A
R77	B-3B
CAPACITOR	
C1	A-3A
C2	A-3B
C3	A-3A
C4	A-3B
C5	B-3B
C6	B-3A
C7	B-3B
C8	B-3B
C10	B-3B
C11	B-2A
C12	B-2A
C15	A-2B
C16	A-3B
C17	A-3A
C18	B-3A
C19	A-3B
COIL	
L1	A-3A
L3	B-3B
CRYSTAL	
X2	A-2B
CONNECTOR	
CN11	A-3A
CN12	A-1A
CN13	A-1B
CN14	A-3A
CN15	A-1A
CN16	A-2A

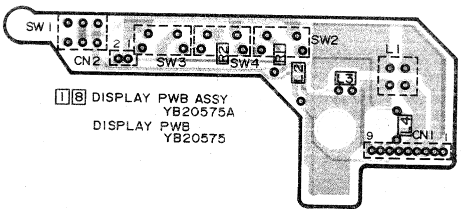
— TALLY —


19 TALLY PWB ASSY
YB20478A-04
TALLY PWB
YB20478-01-04
D1
D2
Q1
Q2
R1
C1
CN1
CN2

— JUNCTION —

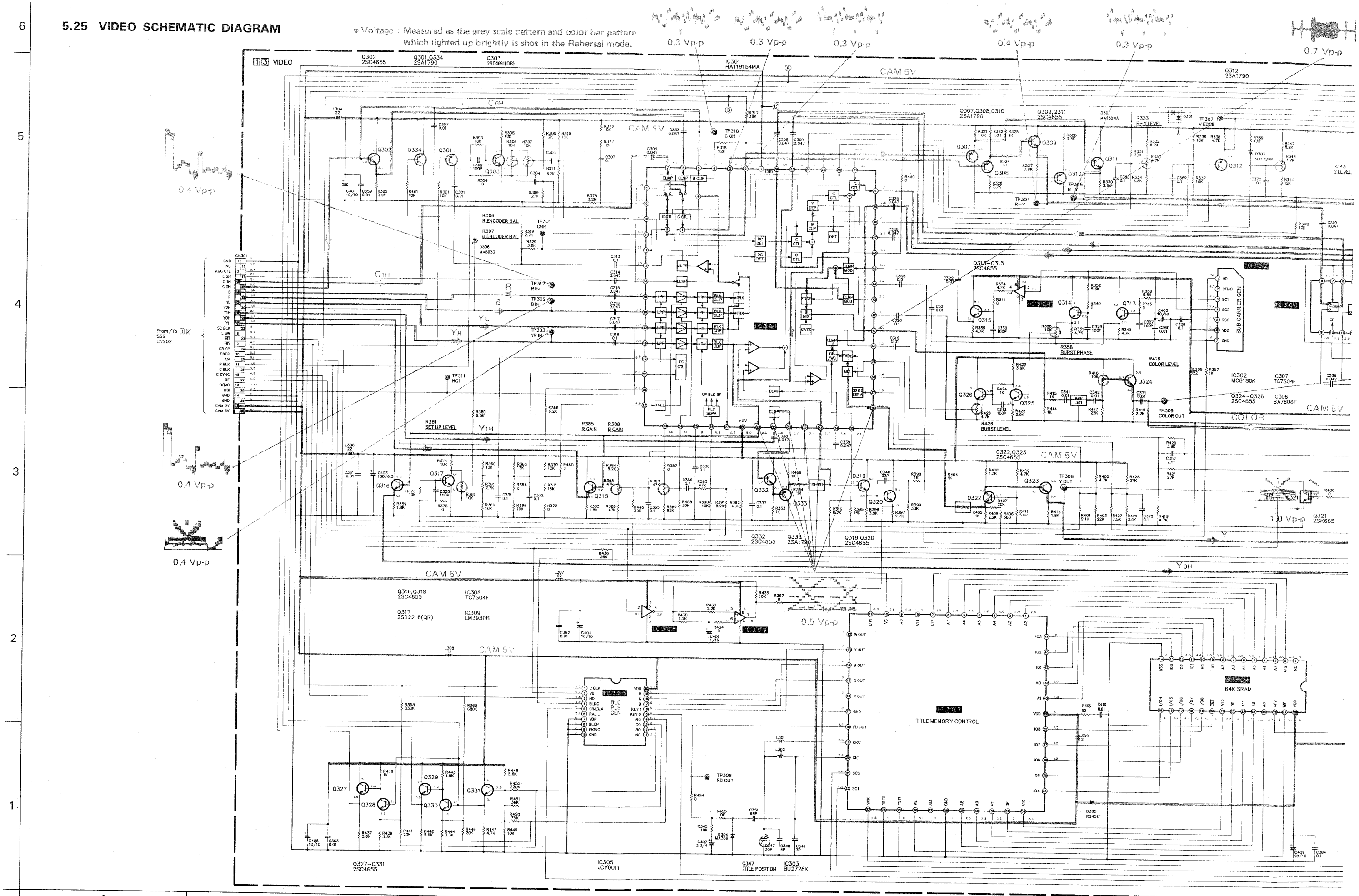

CN2
CN1
CN3
17 JUNCTION PWB ASSY
YB20489A-01
JUNCTION PWB YB20489
-01-01

— DISPLAY —

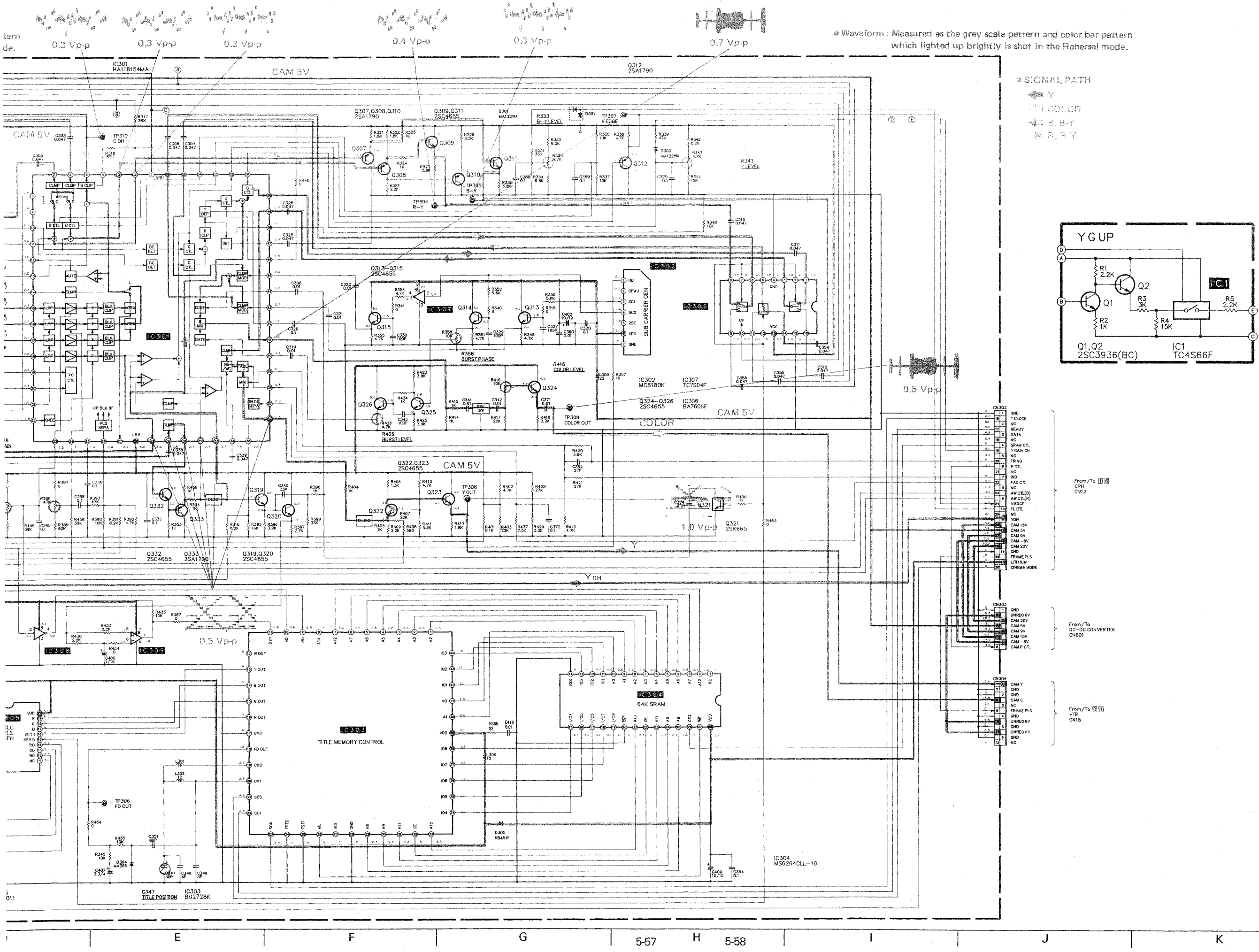

SW1
SW2
SW3
SW4
CN2
CN1
L1
L2
L3
R1
R2
18 DISPLAY PWB ASSY
YB20575A
DISPLAY PWB
YB20575

5.25 VIDEO SCHEMATIC DIAGRAM

● Voltage : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.

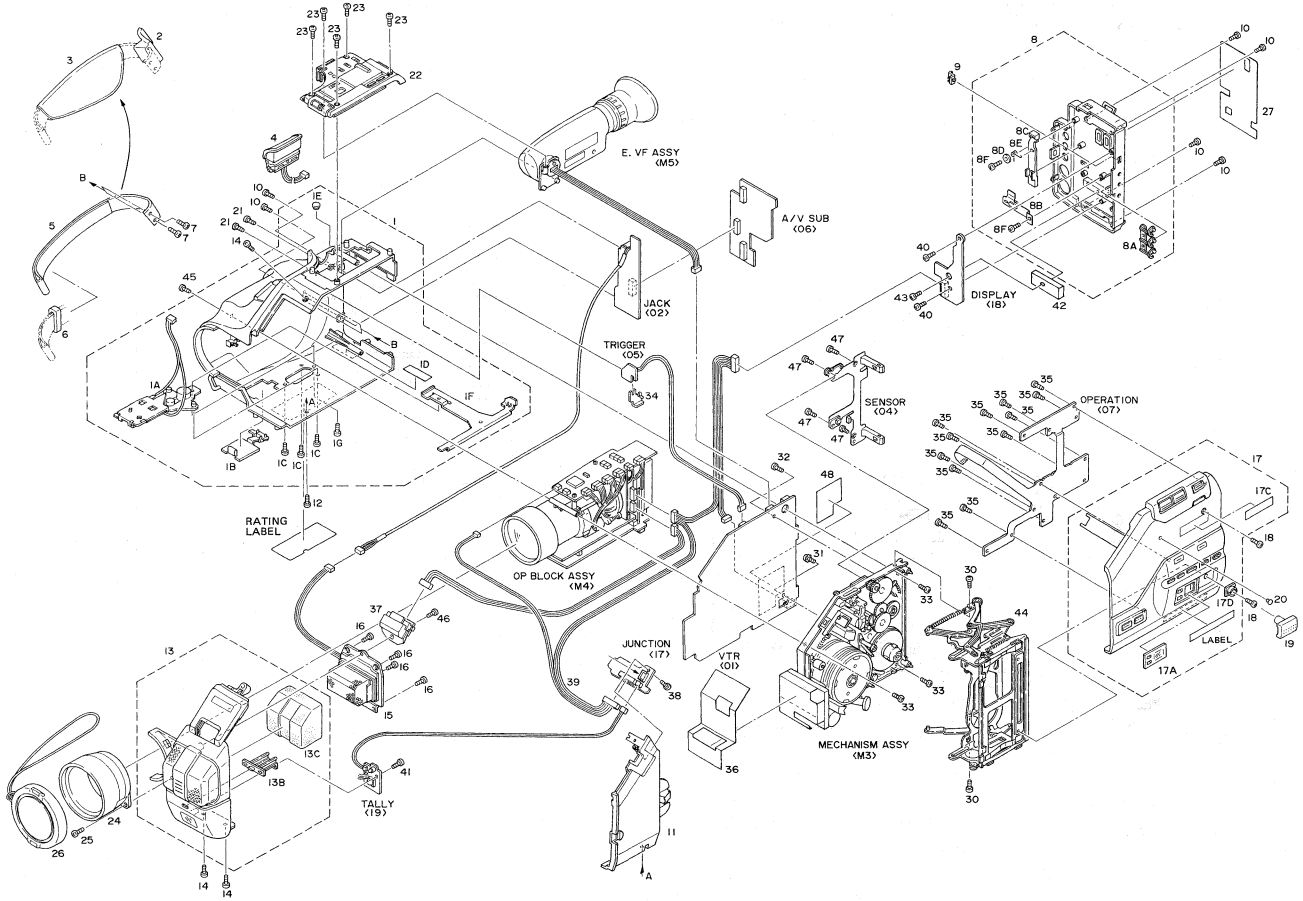


13 VIDEO
0.3 Vp-p
0.3 Vp-p
0.3 Vp-p
0.4 Vp-p
0.3 Vp-p
0.7 Vp-p
0.4 Vp-p
0.4 Vp-p
0.4 Vp-p
0.5 Vp-p
1.0 Vp-p
Q302 2SC4655
Q301,Q334 2SA1790
Q303 2SC4691(QR)
IC301 HA118154MA
CAM 5V
Q312 2SA1790
Q307,Q308,Q310 2SA1790
Q309,Q311 2SC4655
D301 MA7329A
R333 B-Y LEVEL
TP307 V EDGE
TP310 C OH
TP304 R-Y
TP305 B-Y
R306 R ENCODER BAL
R307 B ENCODER BAL
TP301 CNR
D306 MA8033
TP312 R IN
TP302 B IN
TP303 YH IN
TP311 HGI
From/To 12 SSG CN202
CN301
Q313-Q315 2SC4655
SUB CARRIER GEN
R358 BURST PHASE
R416 COLOR LEVEL
IC302 MC8180K
IC307 TC7S04F
Q324-Q326 2SC4655
IC306 BA7606F
TP309 COLOR OUT
R426 BURST LEVEL
COLOR
R381 SET UP LEVEL
R385 R GAIN
R386 B GAIN
Q322,Q323 2SC4655
TP308 Y OUT
Q321 2SK665
Q332 2SC4655
Q333 2SA1790
Q319,Q320 2SC4655
YOH
Q316,Q318 2SC4655
Q317 2SD2216(QR)
IC308 TC7S04F
IC309 LM393DB
IC305 BLC PLS GEN
IC303 TITLE MEMORY CONTROL
IC304 64K SRAM
TP306 FD OUT
D304 MA366
D305 RB451F
Q327-Q331 2SC4655
IC305 JCY0011
C347 TITLE POSITION
IC303 BU2728K
A
B
C
D
E
F
G
H
1
2
3
4
5
6


● Waveform : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.

0.3 Vp-p
0.3 Vp-p
0.3 Vp-p
0.4 Vp-p
0.3 Vp-p
0.7 Vp-p
● SIGNAL PATH
Y
COLOR
B, B-Y
R, R-Y
IC301
HA11B154MA
CAM 5V
Q312
2SA1790
Q307,Q308,Q310
2SA1790
Q309,Q311
2SC4655
R333
B-Y LEVEL
TP307
V EDGE
R343
Y LEVEL
TP310
C OH
TP304
R-Y
TP305
B-Y
Q313–Q315
2SC4655
SUB CARRIER GEN
R358
BURST PHASE
R416
COLOR LEVEL
R426
BURST LEVEL
TP309
COLOR OUT
IC302
MC8180K
IC307
TC7S04F
Q324–Q326
2SC4655
IC306
BA7606F
CAM 5V
COLOR
0.5 Vp-p
Q322,Q323
2SC4655
CAM 5V
TP308
Y OUT
Q332
2SC4655
Q333
2SA1790
Q319,Q320
2SC4655
Y
1.0 Vp-p
Q321
2SK665
YOH
0.5 Vp-p
IC308
IC309
IC305
TITLE MEMORY CONTROL
IC303
IC304
64K SRAM
TP306
FD OUT
D305
RB451F
IC304
MS6264CLL-10
C347
TITLE POSITION
IC303
BU2728K
YG UP
R1
2.2K
Q2
Q1
R3
3K
IC1
R5
2.2K
R2
1K
R4
15K
Q1,Q2
2SC3936(BC)
IC1
TC4S66F
CN302
GND
T CLOCK
NC
READY
DATA
NC
SRAM CTL
Y GAIN ON
NC
FRING
P CTL
NC
IND
FAD CTL
NC
AW CTL(B)
AW CTL(R)
V EDGE
FL CTL
NC
YOH
CAM 15V
CAM 5V
CAM 9V
CAM −8V
CAM 20V
GND
FRAME PLS
LITHIUM
CINEMA MODE
From/To 1 6
CPU
CN12
CN303
GND
UNREG 6V
CAM 20V
CAM 5V
CAM 9V
CAM 15V
CAM −8V
CAM P CTL
From/To
DC–DC CONVERTER
CN801
CN304
CAM Y
GND
GND
CAM C
NC
FRAME PLS
GND
UNREG 6V
GND
UNREG 6V
GND
NC
From/To 0 1
VTR
CN15
E
F
G
H
I
J
K

6.2 FINAL ASSEMBLY < M2 >


E. VF ASSY
<M5>
A/V SUB
<06>
JACK
<02>
TRIGGER
<05>
SENSOR
<04>
OPERATION
<07>
DISPLAY
<18>
OP BLOCK ASSY
<M4>
RATING
LABEL
JUNCTION
<17>
VTR
<01>
MECHANISM ASSY
<M3>
TALLY
<19>
LABEL
1
1A
1B
1C
1D
1E
1F
1G
2
3
4
5
6
7
8
8A
8B
8C
8D
8E
8F
9
10
11
12
13
13B
13C
14
15
16
17
17A
17C
17D
18
19
20
21
22
23
24
25
26
27
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
A
B

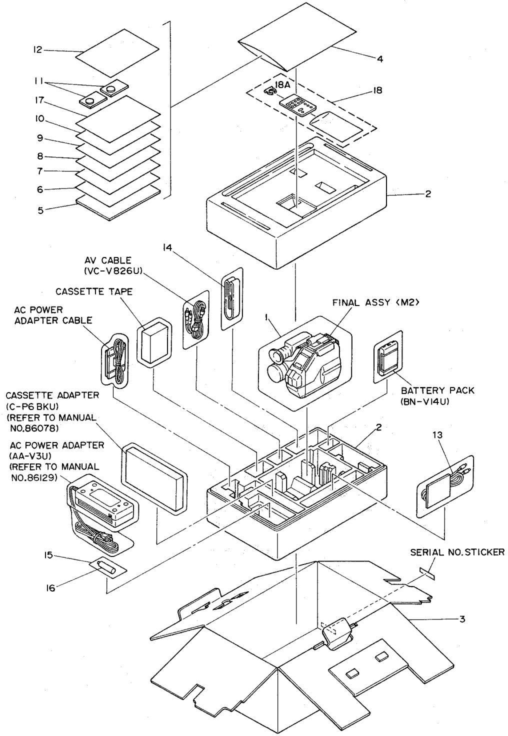
SECTION 6
MECHANICAL PARTS AND EXPLODED VIEWS

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE: <M >indicates mechanical symbol number.

6.1 PACKING ASSEMBLY < M1 >


12
11
17
10
9
8
7
6
5
4
18A
18
2
14
AV CABLE (VC-V826U)
CASSETTE TAPE
AC POWER ADAPTER CABLE
FINAL ASSY <M2>
1
BATTERY PACK (BN-V14U)
CASSETTE ADAPTER (C-P6BKU) (REFER TO MANUAL NO.86078)
AC POWER ADAPTER (AA-V3U) (REFER TO MANUAL NO.86129)
2
13
SERIAL NO.STICKER
15
16
3

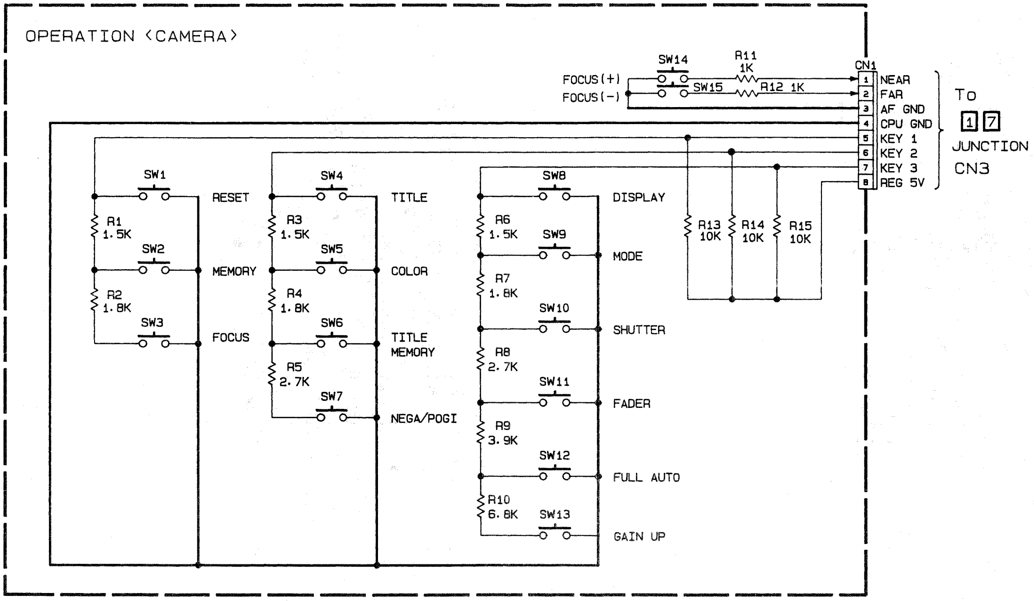
****

PACKING ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	YQM30021-24	POLY BAG
	2	YQ31068A	CUSHION ASSY
	3	YQ31069-1-3	PACKING CASE, USA
	3	YQ31069-2-3	PACKING CASE, CANADA
	4	QPGA025-03505	POLY BAG
⚠	5	YU30052-220	INSTRUCTIONS,USA
⚠	5	YU30052-221	INSTRUCTIONS,CANADA
⚠	6	PU33941-3-3	SAFETY CAUTION
	7	YU40406-36	MARCKET SHEET,USA
	8	BT-20046E	TOLL FREE CARD,USA
	9	YU41302	CATALOGU(ACC),USA
	10	TCU-3492	TAPE CATALOG
⚠	11	YU40547	BATTERY,X2
	12	BT-20025K	WARRANTY CARD,CANADA
	12	BT-20062C	WARRANTY CARD,USA
	13	YQ10055C	S CABLE
	14	YQ10188A-1	S STRAP ASSY
		or YQ10331A	S STRAP ASSY
	15	QPGA005-01005	POLY BAG
	16	UM-3DJ	BATTERY
	17	BT-20071A	INSTRUCTION GUIDE,CANADA
	18	YQ20524-2-3	REMOTE CONTROLLER
	18A	YQ20524-001	BATTERY COVER

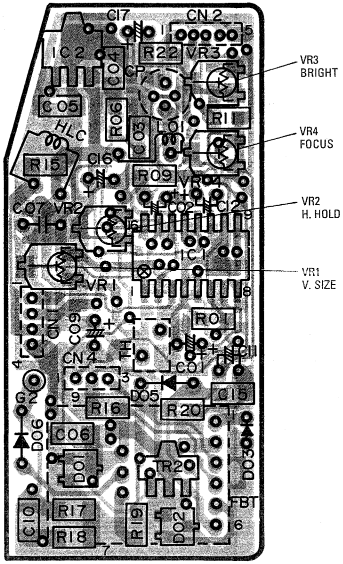
5.29 OPERATION (CAMERA) SCHEMATIC DIAGRAM

Note:
This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

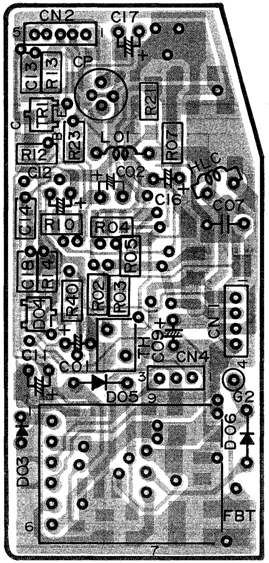

OPERATION <CAMERA>
FOCUS(+)
FOCUS(−)
SW14
SW15
R11
1K
R12 1K
CN1
1 NEAR
2 FAR
3 AF GND
4 CPU GND
5 KEY 1
6 KEY 2
7 KEY 3
8 REG 5V
To
1 7
JUNCTION
CN3
SW1
RESET
R1
1.5K
SW2
MEMORY
R2
1.8K
SW3
FOCUS
SW4
TITLE
R3
1.5K
SW5
COLOR
R4
1.8K
SW6
TITLE
MEMORY
R5
2.7K
SW7
NEGA/POGI
SW8
DISPLAY
R6
1.5K
SW9
MODE
R7
1.8K
SW10
SHUTTER
R8
2.7K
SW11
FADER
R9
3.9K
SW12
FULL AUTO
R10
6.8K
SW13
GAIN UP
R13
10K
R14
10K
R15
10K

5.28 ELECTRONIC VIEWFINDER CIRCUIT BOARD

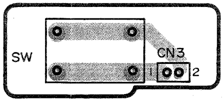
— CONDUCTOR SIDE —
(B)


CI7
CN 2
IC2
CO4
R22
VR3
CP
CO5
HLC
RO6
CO3
LO1
R1
R15
CI6
RO9
VR4
CO7
VR2
CO2
CI2
IC1
VR1
CN1
CO9
RO1
CN4
TH
CO1
CI1
G2
DO5
CI5
R16
R20
DO6
CO6
DO1
TR2
DO3
FBT
CI0
RI7
RI8
RI9
DO2
VR3
BRIGHT
VR4
FOCUS
VR2
H. HOLD
VR1
V. SIZE

— COMPONENT SIDE —
(A)


CN2
CI7
CI3
RI3
CP
TR1
R21
R23
LO1
RO7
RI2
CI2
CO2
HLC
CI6
CO7
CI4
RI0
RO4
RO5
CI8
RI4
R40
RO2
RO3
DO4
CN1
CO9
TH
CI1
CO1
CN4
DO5
G2
DO6
DO3
FBT

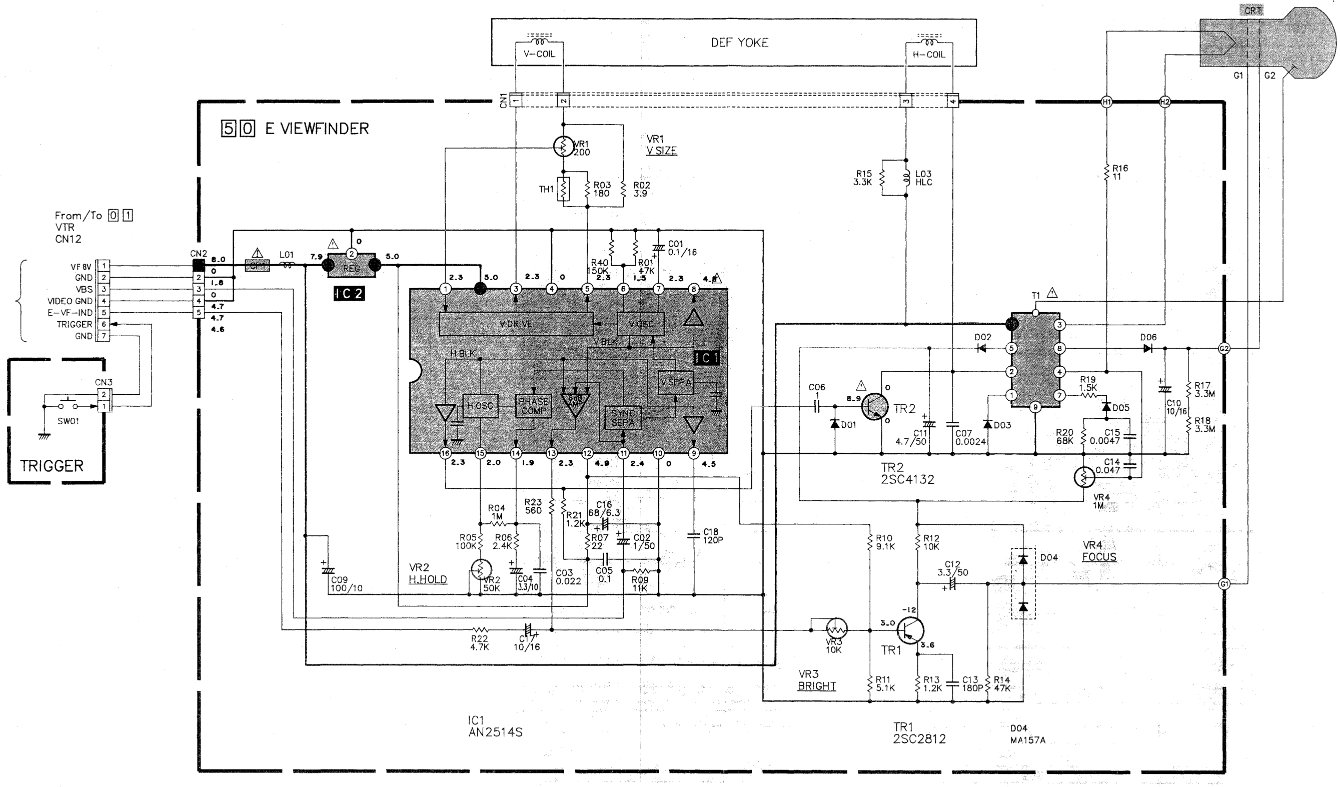
— TRIGGER —



5.27 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM

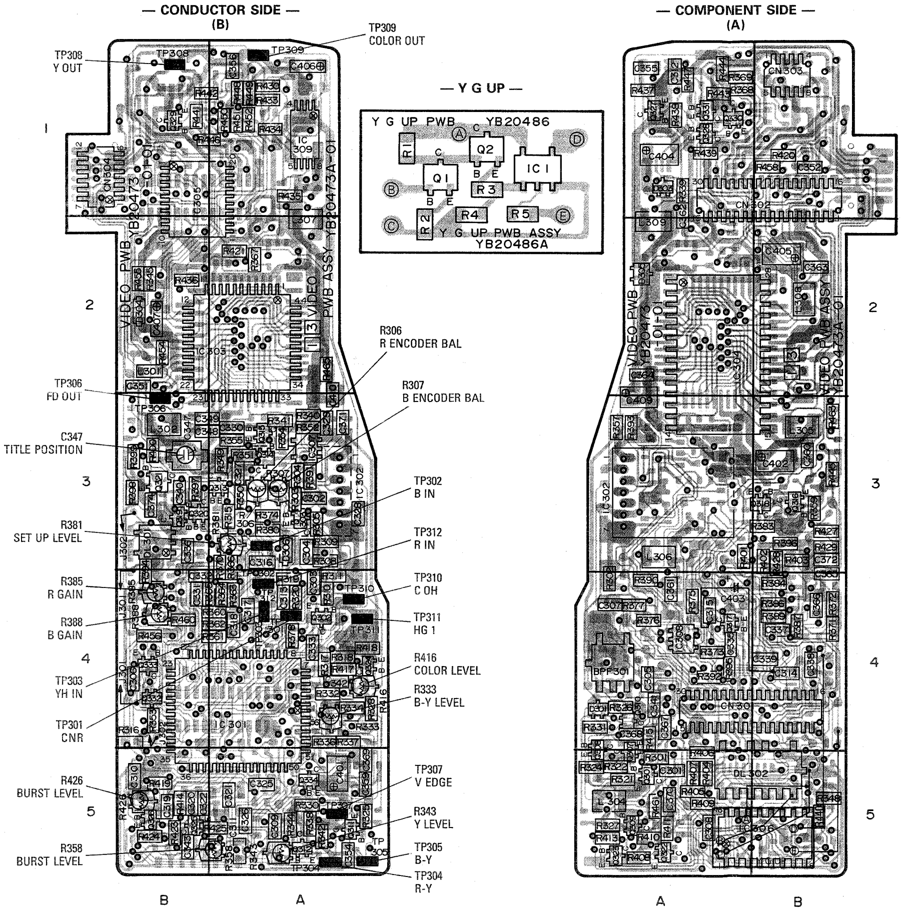
- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

- Voltage : Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the Rehersal mode.



CRT
G1
G2
DEF YOKE
V-COIL
H-COIL
CN1
H1
H2
G1
G2
50 E VIEWFINDER
VR1 200
VR1 V SIZE
TH1
R03 180
R02 3.9
R15 3.3K
L03 HLC
R16 11
From/To 01 VTR CN12
VF 8V
GND
VBS
VIDEO GND
E-VF-IND
TRIGGER
GND
CN2
8.0
1.8
4.7
4.7
4.6
L01
CP1
7.9
REG
5.0
IC2
R40 150K
R01 47K
C01 0.1/16
2.3
5.0
2.3
0
2.3
1.5
2.3
4.8
V.DRIVE
V.OSC
V.BLK
H.BLK
IC1
V.SEPA
H.OSC
PHASE COMP
DET AMP
SYNC SEPA
2.3
2.0
1.9
2.3
4.9
2.4
0
4.5
T1
D02
D06
C06
TR2
8.9
D01
C11 4.7/50
C07 0.0024
D03
R19 1.5K
D05
C10 10/16
R17 3.3M
R18 3.3M
R20 68K
C15 0.0047
C14 0.047
VR4 1M
TR2 2SC4132
CN3
SW01
TRIGGER
R04 1M
R23 560
R21 1.2K
C16 68/6.3
R05 100K
R06 2.4K
R07 22
C02 1/50
C18 120P
C09 100/10
VR2 H.HOLD
VR2 50K
C04 3.3/10
C03 0.022
C05 0.1
R09 11K
R10 9.1K
R12 10K
C12 3.3/50
D04
VR4 FOCUS
-12
3.0
3.6
R22 4.7K
C17 10/16
VR3 10K
TR1
VR3 BRIGHT
R11 5.1K
R13 1.2K
C13 180P
R14 47K
IC1 AN2514S
TR1 2SC2812
D04 MA157A

5.26 VIDEO CIRCUIT BOARD


— CONDUCTOR SIDE —
(B)
— Y G UP —
Y G UP PWB YB20486
Y G UP PWB ASSY YB20486A
— COMPONENT SIDE —
(A)
TP308
Y OUT
TP309
COLOR OUT
TP306
FD OUT
C347
TITLE POSITION
R381
SET UP LEVEL
R385
R GAIN
R388
B GAIN
TP303
YH IN
TP301
CNR
R426
BURST LEVEL
R358
BURST LEVEL
R306
R ENCODER BAL
R307
B ENCODER BAL
TP302
B IN
TP312
R IN
TP310
C OH
TP311
HG 1
R416
COLOR LEVEL
R333
B-Y LEVEL
TP307
V EDGE
R343
Y LEVEL
TP305
B-Y
TP304
R-Y
VIDEO PWB YB20473-01-01
VIDEO PWB ASSY YB20473A-01
1
2
3
4
5
B
A
A
B

- Location of SMC parts

A-1D
Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF No.	LOCATION
IC	
IC301	B-4A
IC303	B-2A
IC304	A-2A
IC305	B-1B
IC306	A-5B
IC307	B-3A
IC308	A-4A
IC309	B-1A

REF No.	LOCATION
TRANSISTOR	
Q301	A-5A
Q302	B-4A
Q303	B-3A
Q307	A-4A
Q308	A-4A
Q309	A-5A
Q310	A-4A
Q311	B-5A
Q312	B-5A
Q313	B-3A
Q314	B-3A
Q315	B-3A
Q316	A-3B
Q317	A-4A
Q318	A-3B
Q319	B-3B
Q320	B-3B
Q321	B-3B
Q322	A-5A
Q323	A-5A
Q324	B-4A
Q325	B-5B
Q326	B-5B
Q327	A-1A
Q328	A-1A
Q329	B-1B
Q330	A-1A
Q331	A-1A
Q332	A-4B
Q333	A-4B
Q334	B-5A

REF No.	LOCATION
DIODE	
D301	A-4A
D303	A-1A
D304	B-2B
D305	A-2A
D306	B-3A

REF No.	LOCATION
RESISTOR	
R301	A-5A
R302	A-4A
R303	B-3A
R304	B-3A
R305	B-3A
R306	B-3A
R307	B-3A
R308	B-3A
R309	B-3A
R310	B-4A
R311	B-4A
R315	B-3A
R316	B-5B
R317	B-4A
R318	B-4A
R319	B-4A
R320	B-4A
R321	A-5A
R322	A-5A
R324	A-5A
R325	B-5A
R326	A-4A
R327	A-5A
R328	B-4A
R330	B-5A
R331	A-4A
R332	B-4A
R333	B-4A
R334	B-4A
R336	B-4A
R337	B-4A
R338	B-5A
R339	A-1A
R340	B-3A
R341	B-3A
R342	B-5A
R343	B-5A
R344	B-5A
R345	B-2B
R348	A-5B
R349	B-3A
R350	B-3A
R351	B-3A
R352	B-3A
R353	B-4B
R354	B-3A
R355	B-3A
R357	A-3A
R358	B-5A
R359	A-3B
R360	B-4A
R361	B-4A
R362	B-4A
R363	B-4A
R364	B-4A
R365	B-4A
R366	B-3A
R367	B-2A
R368	A-1A
R369	A-1A
R370	B-3A
R371	A-4B
R372	A-4B
R373	A-4A
R374	B-3A
R375	A-4A
R376	A-4A
R377	A-4A
R378	B-4A
R380	B-3A
R381	B-3A
R383	A-3B
R384	A-4B
R385	B-4B

REF No.	LOCATION
RESISTOR	
R386	A-4B
R387	A-4B
R388	B-4B
R389	A-4B
R390	A-4A
R391	B-3A
R392	A-4A
R393	A-3A
R394	B-4B
R395	A-4A
R396	A-3B
R397	B-3B
R398	B-3B
R399	B-3B
R400	B-3B
R401	A-3A
R402	A-3B
R403	A-3B
R404	A-5A
R405	A-5A
R406	A-5A
R407	A-5A
R408	A-5A
R409	A-5A
R410	A-5A
R411	A-5A
R413	B-5A
R414	B-5B
R415	A-4A
R416	B-4A
R417	B-4A
R418	B-4A
R419	B-5B
R420	A-1B
R421	B-2A
R423	B-5B
R424	B-5B
R425	B-5A
R426	B-5B
R427	A-3B
R428	A-3B
R429	A-3B
R430	B-1A
R433	B-1A
R434	B-1A
R435	B-1A
R436	B-2B
R437	A-1A
R438	A-1A
R439	A-1A
R440	A-5B
R441	B-1B
R442	B-1B
R443	A-1A
R444	A-1A
R445	A-3B
R446	B-1A
R447	A-1A
R448	B-1A
R449	B-1A
R450	B-1A
R451	B-1A
R452	B-1A
R454	B-2B
R455	B-2B
R456	B-4B
R458	A-1B
R460	B-4B
R461	A-5A
R463	A-3B
R465	B-2A

REF No.	LOCATION
CAPACITOR	
C301	A-5A
C302	B-3A
C303	B-4A
C304	B-3A
C305	A-4A
C306	B-4B
C307	A-4A
C308	A-5A
C309	B-5A
C310	B-5B
C311	B-5A
C312	A-1A
C313	B-4A
C314	A-4B
C315	A-4A
C316	B-3A
C317	B-4A
C318	B-4A
C319	B-5B
C320	B-5B
C321	B-5A
C322	B-5B
C325	B-5A
C326	B-5A
C327	B-3A
C328	B-3A
C329	B-3A
C330	B-3A
C331	B-3A
C332	B-4B
C333	B-4A
C335	A-4A
C336	B-3B
C337	A-4B
C338	A-4B
C339	A-4B
C340	B-3B
C341	A-4A
C342	A-4A
C343	B-5A
C347	B-3B
C348	B-3B
C349	B-3B
C351	B-2B
C352	A-1B
C354	A-5A
C355	A-1A
C356	B-5A
C359	B-5A
C360	A-3B
C361	A-4A
C362	A-1A
C363	A-2B
C364	A-2A
C365	A-4B
C366	A-4B
C367	A-4A
C368	A-4A
C369	B-5A
C370	A-5A
C371	B-3A
C372	A-3B
C374	B-3B
C401	B-5A
C402	A-3B
C404	A-1A
C405	A-2B
C406	B-1A
C407	B-2B
C409	A-2A
C410	B-3A

REF No.	LOCATION
COIL	
L301	B-2B
L302	B-3B
L304	A-5A
L305	A-3B
L306	A-3A
L307	B-2A
L308	A-2B
L309	A-2A

REF No.	LOCATION
BAND PASS FILTER	
BPF301	A-4A

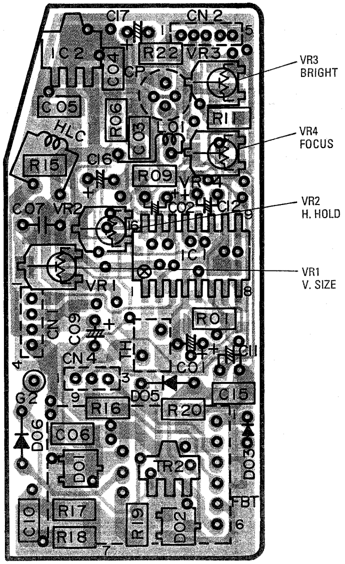
REF No.	LOCATION
DELAY LINE	
DL301	B-3B
DL302	A-5B

REF No.	LOCATION
TEST PIN	
TP301	B-4A
TP302	B-3A
TP303	B-4A
TP304	B-5A
TP305	B-5A
TP306	B-3B
TP307	B-5A
TP308	B-1B
TP309	B-1A
TP310	B-4A
TP311	B-4A
TP312	B-4A

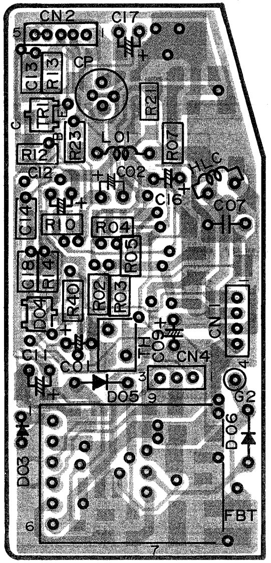
REF No.	LOCATION
CONNECTOR	
CN301	A-4A
CN302	A-1B
CN303	A-1B
CN304	B-1B

5.28 ELECTRONIC VIEWFINDER CIRCUIT BOARD

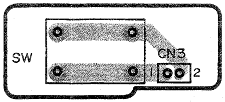
— CONDUCTOR SIDE —
(B)


CI7
CN 2
IC 2
C04
R22
VR3
CP
C05
R06
C03
L01
R11
HLC
R15
CI6
R09
VR4
C07
VR2
C02
CI2
IC1
VR1
CN1
C09
R01
H
CN4
C01
CII
G2
D05
R16
R20
CI5
D06
C06
D01
TR2
D03
FBT
CI0
R17
R18
R19
D02
VR3
BRIGHT
VR4
FOCUS
VR2
H. HOLD
VR1
V. SIZE

— COMPONENT SIDE —
(A)


CN2
CI7
CI3
RI3
CP
R21
TR1
R23
L01
R07
RI2
CI2
C02
CI6
HLC
CI4
R10
R04
C07
R05
CI8
R14
R40
R02
R03
CN1
D04
C09
H
CN4
CII
C01
D05
G2
D03
D06
FBT

— TRIGGER —



****

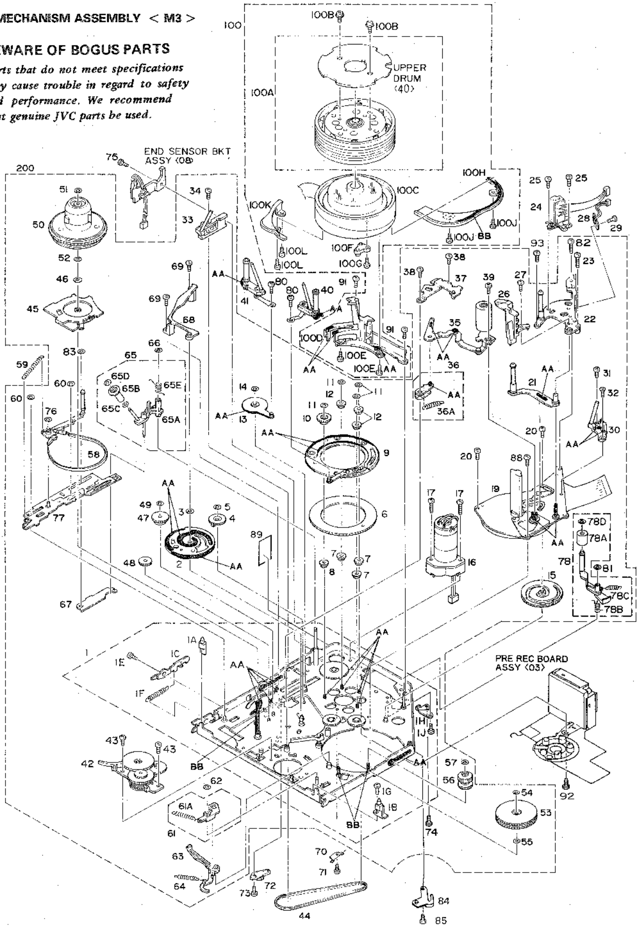
FINAL ASSEMBLY <M2>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ 1	YQ10306B-6	LOWER CASE ASSY
1A	YQ30865B-6	BASE ASSY
⚠ 1B	YQ30862	CLOCK BATTERY COVER
1C	YQM30052-2	SCREW,X3 M2X5
1D	YQM30029-69	SPACER
1E	YQ41874-1-2	STOPPER
1F	YQ30952	BASE BRACKET
1G	YQM30032-3-2	SPECIAL SCREW,M2X5
2	YQ30778-1-2	FINGER REST
3	YQ30950-3-2	GRIP PAD
4	YQ20458-1-4	ZOOM SWITCH
5	YQ30847-1-1	GRIP BELT
6	YQ42087	RING
7	YQM30032-42	SCREW,X2 M2.6X6
⚠ 8	YQ20514B-2	REAR COVER ASSY
8A	YQ30766	DATE BUTTON
8B	YQ30767A-3	LOCK LEVER ASSY
8C	YQ42262	LOCK KNOB
8D	YU41718	WASHER
8E	YQ41879	TORTION SPRING
8F	YQM30032-40	SPECIAL SCREW,X2 M2X4
9	YQ41877-2	TIME KNOB
10	YQM30052-3	SCREW,X6 M2X5
⚠ 11	YQ30951A-2	UPPER COVER ASSY
12	YQM30052-2	SCREW,M2X5
⚠ 13	YQ20493B	FRONT PANEL ASSY
13B	YQ42263	INDICATOR
13C	YQ31038	SPACER
14	YQM30052-3	SCREW,X3 M2X5
15	YQ20488-1-2	MICROPHONE
16	YQM30052-3	SCREW,X4 M2X5
⚠ 17	YQ10289B-1	CASSETTE COVER ASSY
17A	YQ30959-2	CASSETTE WINDOW
17C	YQ30877-3	MARK
17D	YQ42283	JOINT
18	YQM30032-5-2	SPECIAL SCREW,X2 M2X6
19	YQ42264-2	BUTTON(CLOSE)
20	YQ40703	CAP
21	YQM30052-2	SCREW,X2 M2X5
⚠ 22	YQ10284-2	OPERATION UNIT
23	YQM30052-2	SCREW,X5 M2X5
24	YQ42349B	HOOD ASSY
25	YQM30052-2	SCREW,M2X5
26	YQ42350A-1	HOOD CAP ASSY
⚠ 27	YU30573-4	BATTERY BASE SHEET
30	SPSH1725M	SCREW,X2
31	YQ40691	SPECIAL SCREW,M1.7X4
32	SPSH1725M	SCREW
33	SPSF2005Z	SCREW,X3
34	YQ41864-1-2	BOARD HOLDER
35	YQM30032-40	SPECIAL SCREW,X12 M2X4
36	YQ31135	SHEET
37	YQ30964A	WHITE BALANCE SENSOR ASSY
38	YQM30032-40	SPECIAL SCREW,M2X4
39	ML-Y00598A	CPU BOARD WIRE
40	SPSF2005Z	SCREW,X2
41	SPSF2008Z	SCREW
42	YQ30894A	HOLDER ASSY
43	SPSF2005Z	SCREW
44	YQ31039A-3	CASSETTE HOUSING ASSY
45	YQM30052-2	SCREW,M2X5
46	YQM30052-3	SCREW,M2X6
47	SPSH1725M	SCREW,X4
48	YU41882	SHIELD PLATE

6.3 MECHANISM ASSEMBLY < M3 >

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.


100
100B
100B
UPPER DRUM <40>
100A
100C
100H
100K
100J
100J BB
100L
100L
100F
100G
END SENSOR BKT ASSY <08>
75
200
51
50
52
46
45
34
33
69
69
68
41
80
80
40
91
100D
100E
100E
91
AA
38
38
37
39
36
35
36A
26
27
25
25
24
28
29
93
82
23
22
21
31
32
30
83
59
60
60
76
58
77
66
65
65D
65B
65E
65C
65A
14
13
11
11
12
12
10
9
6
7
7
7
8
49
47
3
5
4
2
48
89
67
20
20
88
19
17
17
16
15
78D
78A
78
81
78C
78B
PRE REC BOARD ASSY <03>
1
1A
1C
1E
1F
1H
1J
1G
1B
43
43
42
BB
62
61A
61
63
64
70
71
72
73
44
57
56
54
53
55
92
74
84
85

Category	Part number	MARK
Grease	Moriton Grease No. 1	AA
Oil	Cosmo Hydro HV100	BB

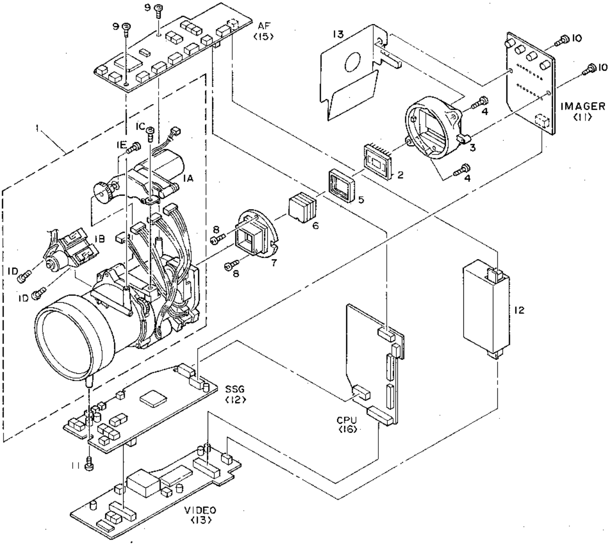
NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

****

MECHANISM ASSEMBLY <M3>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	YQ10282A-7	MAIN DECK ASSY
	1A	YQ41500-1-1	GUIDE PIN(S)
	1B	YQ41501-1-3	GUIDE PIN(T)
	1C	YQ41621-1-2	CANCEL PLATE
	1E	YQ42172	SPECIAL SCREW,M1.7X1.15
	1F	YQM30001-49-12	TENSION SPRING
	1G	SPSH1725M	SCREW
	1H	YQ41867-1-3	SUPPORT PLATE
	1J	SPSH1720M	SCREW
	2	YQ20464	CONTROL CAM GEAR
	3	PQM30017-25	SLIT WASHER
	4	YQ42234-1-3	LOADING GEAR 2
	5	PQM30017-27	SLIT WASHER
		or YQM30017-1	SLIT WASHER
	6	YQ41503-1-4	DRIVE GEAR
	7	YQ42141	LOADING GUIDE,X3
		or YQ41901-1-1	LOADING GUIDE,X3
	8	YQ41902-1-1	LOADING GUIDE 2
	9	YQ42183A	LOADING RING ASSY
	10	YQ42048	SUPPLY MIDDLE GEAR
	11	PQM30017-27	SLIT WASHER,X4
	12	YQ41904	L.WASHER,X3
	13	YQ42180A-1	SUPPLY LOADING GEAR ASSY
	14	PQM30017-27	SLIT WASHER
	15	YQ31013-1-1	MIDDLE POLE CAM GEAR
⚠	16	YU41875	LOADING MOTOR ASSY
⚠		or YU41403T-4	LOADING MOTOR ASSY
	17	SPSH1710M	SCREW,X2
⚠	19	YU41840-1-1	CAPSTAN MOTOR
	20	SPSH1725M	SCREW,X2
	21	YQ41517A-7	MIDDLE POLE ARM ASSY
	22	YQ41996A-5	SUB DECK ASSY
	23	SPSH1760M	SCREW
	24	YQ41871B	A/C HEAD ASSY
	25	YQ40904A-1	ALOCK SCREW,X2
	26	YQ31027	CASSETTE BLOCK
	27	SPSH1735M	SCREW
	28	YU41682-1-1	DEW SENSER
	29	SPSH1720M	SCREW
	30	YQ42089A-1	MIDDLE POLE CATCHER ASSY
	31	SPSH1720M	SCREW
	32	SSSH1730M	SCREW
	33	YQ41535A-1	SUPPLY SLANT POLE ASSY
	34	SPSH1735M	SCREW
	35	YQ30906A-2	PINCH ROLLER ARM ASSY
	36	YQ42199A	SPRING PLATE ASSY
	36A	YQ41551-1	TENSION SPRING
	37	YQ42190A-1	GUIDE PLATE ASSY
	38	SPSH1425M	SCREW,X2
	39	YQM30032-21	SPECIAL SCREW,M1.7X3
	40	YU41911-1-1	P.BASE(T) ASSY
	41	YU41838-1-3	SUPPLY POLE BASE ASSY
	42	YU41406-1-7	CENTER GEAR ASSY
	43	SPSH1725M	SCREW,X2
	44	YQ41558	TIMING BELT
	45	YU41407-1-3	CAM SWITCH ASSY
	46	PQM30017-22	SLIT WASHER
	47	YQ41559-1-1	ENCODER GEAR(1)
	48	YQ41560	ENCODER GEAR(2)
	49	PQM30017-27	SLIT WASHER
		or YQM30017-1	SLIT WASHER
	50	YU41408-1-2	SUPPLY REEL DISK ASSY
	51	PQM30017-27	SLIT WASHER
	52	Q03093-835	WASHER
	53	YU41459-1-2	TAKE-UP CLUTCH ASSY
	54	PQM30017-27	SLIT WASHER
	55	Q03093-835	WASHER
	56	YQ41562	TAKE-UP GEAR
	57	PQM30017-27	SLIT WASHER
	58	YQ42197A-2	TENSION ARM ASSY
	59	YQ41963-1-2	TENSION SPRING
	60	PQM30017-27	SLIT WASHER,X2
		or YQM30017-1	SLIT WASHER,X2
	61	YQ41628A	SEARCH BRAKE SUB ASSY
	61A	YQ41551-2	TENSION SPRING
	62	PQM30017-27	SLIT WASHER
	63	YQ41756-1-4	BRAKE DRIVE LEVER
	64	YQ41625	TENSION SPRING
	65	YQ41585A-7	IMPEDANCE ROLLER ARM ASSY
	65A	YQ41586A-3	IMPEDANCE ROLLER ARM SUB ASSY
	65B	YQ41588A-3	IMPEDANCE ROLLER ASSY
	65C	Q03093-835	WASHER
	65D	PQM30017-27	SLIT WASHER
	65E	YQ41664	TORSION SPRING
	66	PQM30017-27	SLIT WASHER
	67	YQ42081	CANCEL LEVER
	68	YDM2046-2-8	SUPPLY GUIDE RAIL
	69	SPSH1735M	SCREW,X2
	70	YU41447-1-4	BRUSH
	71	SPSH1735M	SCREW
	72	YQ30875-1-3	LED GUIDE
	73	SPSH1720M	SCREW
	74	SPSK1425M	MINI SCREW
	75	SPSH1735M	SCREW
	76	PQM30017-27	SLIT WASHER
	77	YQ42181A-1	SLIDE PLATE SA
	78	YQ41988A-7	HEAD CLEANER ASSY
	78A	YQ41990	CLEANER
	78B	YQ42047-1-1	SPRING
	78C	YQ41994-1-1	TENSION SPRING
	78D	PQM30017-27	SLIT WASHER
	80	YQ42009	SPECIAL SCREW,X2
	81	PQM30017-27	SLIT WASHER
	82	SPSH1735M	SCREW
	83	PQM30017-27	SLIT WASHER
	84	YQ31035-1-1	WIRE HOLDER
	85	SPSH1725M	SCREW
	88	SPSH1730M	MINI SCREW
	89	YQM30029-78	SPACER
	91	SPSK1735M	SPECIAL SCREW,X2
	92	SPSH1725M	SCREW
	93	SPSK1720M	MINI SCREW
	100	YDV2041A	DRUM ASSY
	100A	YDM2040A-8	UPPER DRUM ASSY
	100B	YDM4031	SCREW,X2
	100C	YDM2042B	LOWER DRUM MOTOR ASSY
	100D	YDM2044-1-13	UV BASE
	100E	SPSK1734M	SCREW,X2
	100F	YDM4073	DRUM SPACER
	100G	SPSK1734M	SCREW
	100H	YDM2045-1-8	TU GUIDE RAIL
	100J	SPSH1725M	SCREW,X2
	100K	YDM2046-1-8	SUP GUIDE RAIL
	100L	SPSH1725M	SCREW,X2
⚠	200	YMA0009A	MECHA(A) ASSY

6.4 OPTICAL BLOCK ASSEMBLY < M4 >

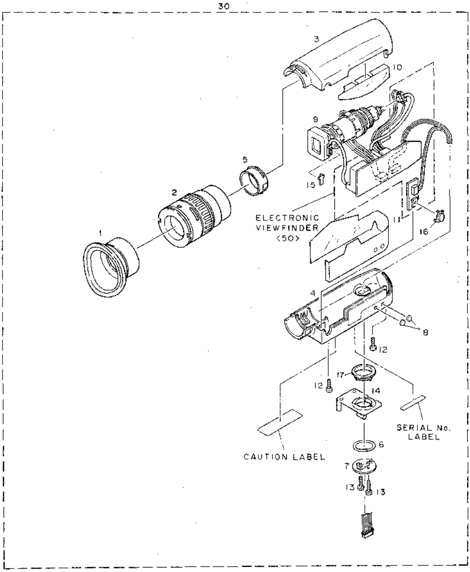

9
9
AF
<15>
13
10
10
IMAGER
<11>
1
IC
IE
1A
4
3
2
4
5
6
8
1B
7
8
1D
1D
12
SSG
<12>
CPU
<16>
11
VIDEO
<13>

＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊

OPTICAL BLOCK ASSEMBLY <M4>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	YU30578-1-1	OPTICAL BLOCK ASSY
	1A	YU30578-001	ZOOM MOTOR ASSY
	1B	YU30578-002	AF MOTOR ASSY
	1C	YU30525-003	SCREW
	1D	YU30578-004	SCREW,X2
	1E	YU30578-003	SCREW
⚠	2	TCD5201AD	IC(CCD)
	3	YQ30845	IMAGER HOLDER
	4	DPSP2008Z	SCREW,X2
	5	YQ41658	SPACER RUBBER
	6	PEDP0043	OPTICAL LPF
		or PEDP0043-D	OPTICAL LPF
		or PEDP0043-B	OPTICLA LPF
		or PEDP0043-C	OPTICAL LPF
	7	YQ30846	OPTICAL LPF HOLDER
	8	SPSK2004F	MINI SCREW,X2
	9	SPSF2005Z	SCREWX2
	10	SPSP2004Z	SCREW,X2
	11	SPSF2005Z	SCREW
	12	PEAS2031	DC-DC CONVERTER
	13	YU41930	INSULATER

6.5 ELECTRONIC VIEWFINDER ASSEMBLY < M5 >


30
3
10
9
5
2
1
15
ELECTRONIC
VIEWFINDER
<50>
11
16
4
8
12
17
12
14
SERIAL No.
LABEL
CAUTION LABEL
6
7
13
13

****

ELECTRONIC VIEWFINDER ASSEMBLY <M5>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	YU30407-041	EYE CAP
	2	YU30595-005	LENS ASSY
⚠	3	YU30531-202	TOP CASE
⚠	4	YU30531-251	BOTTOM CASE
	5	YU30531-252	PROTECTOR RING
	6	YU30407-052	WAVE WASHER
	7	YU30407-053	SHOE COVER
	8	YU30045-024	CAP,X2
⚠	9	YU30531-253	CRT/DY ASSY
	10	YU30531-254	INSULATOR1
	11	YU30531-255	INSULATOR2
	12	YU30045-014	SCREW,X2 M1.7X5
	13	YU30236-017	SCREW,X2 M2X8
	14	YU30407-051	MOUNTING PLATE
⚠	15	YU30181-014	HIGH VOLTAGE COVER
	16	YU30531-257	BUTTON
	17	YU30407-057	BUSING
⚠	30	YU30531H-6	EVF ASSY

SECTION 7
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTES:

- **< 2 digits > indicates circuit board symbol number.**

****

VTR BOARD ASSEMBLY <01>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	YB10081H-02-C2	VTR BOARD ASSY
⚠	IC16	4VT44	IC
	IC31	BA7757BK	IC
	IC32	LM324DB	IC
	IC101	JCY0001A2	IC
	IC102	JCY0002A1	IC
	IC104	M56780VP	IC
	IC105	BA7043FS	IC
	IC251	VC5035	IC
	IC252	LB1851M	IC
	IC301	M38062M3-121GP	IC
		or M38063M6-113GP	IC
		or M38063M6-171GP	IC
		or M38063M6-173GP	IC
	IC302	M54543AFP	IC
	IC303	BU4584BF	IC
	IC304	S-87050CF	IC
	IC305	LM358DB	IC
	IC306	UPC1093T	IC
	IC401	BA7046F	IC
	IC402	BU4053BF	IC
		or UPD4053BG	IC
	IC403	TC4S69F	IC
	IC501	M52353VP	IC
	IC502	VC2076MP	IC
	IC503	5VT56	IC
	IC504	M52062FP	IC
	IC505	H8B7192A	IC
	IC506	TC4S66F	IC
	IC507	TC4S30F	IC
	Q1	DTC144EE	TRANSISTOR
	Q2	2SA1577(QR)	TRANSISTOR
	Q3	DTC144EE	TRANSISTOR
	Q4	DTC144EE	TRANSISTOR
	Q5	2SA1577(QR)	TRANSISTOR
	Q6	DTC144EE	TRANSISTOR
	Q7	DTC144EE	TRANSISTOR
	Q8	2SA1577(QR)	TRANSISTOR
	Q9	DTC144EE	TRANSISTOR
	Q10	DTC144EE	TRANSISTOR
	Q31	DTC144EE	TRANSISTOR
	Q34	2SA1577(QR)	TRANSISTOR
	Q35	DTC144EE	TRANSISTOR
	Q36	2SA1577(QR)	TRANSISTOR
	Q37	DTC144EE	TRANSISTOR
	Q38	2SC4617(RS)	TRANSISTOR
	Q39	DTC144EE	TRANSISTOR
	Q40	DTC144EE	TRANSISTOR
	Q41	DTA124EE	TRANSISTOR
	Q42	UMW1	TRANSISTOR
	Q43	DTC144EE	TRANSISTOR
	Q44	DTC144EE	TRANSISTOR
	Q45	DTC144EE	TRANSISTOR
	Q46	DTC144EE	TRANSISTOR
	Q101	DTC144EE	TRANSISTOR
		or UN9213	TRANSISTOR
	Q102	DTC114EE	TRANSISTOR
		or UN9214	TRANSISTOR
	Q103	DTC144EE	TRANSISTOR
		or UN9213	TRANSISTOR
	Q104	UMZ1	TRANSISTOR
		or XP4601	TRANSISTOR
	Q106	UMZ1	TRANSISTOR
		or XP4601	TRANSISTOR
	Q110	2SA1774(RS)	TRANSISTOR
	Q111	2SC4617(RS)	TRANSISTOR
		or 2SD2216(RS)	TRANSISTOR
	Q112	DTA144EE	TRANSISTOR
		or UN9113	TRANSISTOR
	Q113	DTA144EE	TRANSISTOR
		or UN9113	TRANSISTOR
	Q114	2SC4617(RS)	TRANSISTOR
		or 2SD2216(RS)	TRANSISTOR
	Q115	2SC4617(RS)	TRANSISTOR
		or 2SD2216(RS)	TRANSISTOR
	Q116	2SC4617(RS)	TRANSISTOR
		or 2SD2216(RS)	TRANSISTOR
	Q117	DTC144EE	TRANSISTOR
		or UN9213	TRANSISTOR
	Q120	DTA144EE	TRANSISTOR
		or UN9113	TRANSISTOR
	Q121	2SA1576(Q)	TRANSISTOR
	Q122	DTC144EE	TRANSISTOR
		or UN9213	TRANSISTOR
	Q123	UMG2	TRANSISTOR
	Q124	UMG2	TRANSISTOR
	Q125	DTC144EE	TRANSISTOR
	Q301	DTA114EE	TRANSISTOR
	Q302	2SA1774(QRS)	TRANSISTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	Q303	2SA1774(QRS)	TRANSISTOR
	Q304	2SC4617(QRS)	TRANSISTOR
	Q305	DTC114EE	TRANSISTOR
	Q310	DTC144EE	TRANSISTOR
	Q311	DTC144EE	TRANSISTOR
	Q312	DTC144EE	TRANSISTOR
	Q313	DTC144EE	TRANSISTOR
	Q401	2SA1774(QRS)	TRANSISTOR
	Q501	DTC144EE	TRANSISTOR
	Q502	DTC144EE	TRANSISTOR
	Q503	DTC144EE	TRANSISTOR
	Q504	UMD2	TRANSISTOR
	Q505	2SA1774(RS)	TRANSISTOR
	Q506	DTC144EE	TRANSISTOR
	Q507	UMG2	TRANSISTOR
	Q508	DTC144EE	TRANSISTOR
	Q509	DTC144EE	TRANSISTOR
	Q510	DTA144EE	TRANSISTOR
	Q511	2SC4617(RS)	TRANSISTOR
	Q512	2SA1774(RS)	TRANSISTOR
	Q513	DTC144EE	TRANSISTOR
	Q514	DTC144EE	TRANSISTOR
	Q516	UMG2	TRANSISTOR
	Q520	2SA1774(RS)	TRANSISTOR
	Q521	DTC144EE	TRANSISTOR
	Q522	DTC144EE	TRANSISTOR
	Q523	DTC144EE	TRANSISTOR
	Q524	DTC144EE	TRANSISTOR
	Q525	DTC144EE	TRANSISTOR
	Q526	DTC144EE	TRANSISTOR
	Q527	DTC144EE	TRANSISTOR
	Q528	DTC144EE	TRANSISTOR
	Q529	2SA1774(RS)	TRANSISTOR
	Q531	DTA144EE	TRANSISTOR
	Q532	DTA144EE	TRANSISTOR
	Q533	DTC144EE	TRANSISTOR
	Q534	UMW1	TRANSISTOR
	Q535	DTC144EE	TRANSISTOR
	Q536	FMU1	TRANSISTOR
	Q543	DTC144EE	TRANSISTOR
	Q544	2SC4617(RS)	TRANSISTOR
	Q545	DTC144EE	TRANSISTOR
	Q546	FMU1	TRANSISTOR
	Q547	DTC144EE	TRANSISTOR
	Q551	DTC144EE	TRANSISTOR
	Q552	UMG2	TRANSISTOR
	Q553	UMG2	TRANSISTOR
	Q554	DTC144EE	TRANSISTOR
	Q555	DTC144EE	TRANSISTOR
	Q557	2SA1774(RS)	TRANSISTOR
	Q561	FMU1	TRANSISTOR
	Q562	FMU1	TRANSISTOR
	Q563	FMQ1	TRANSISTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	Q564	2SA1774(RS)	TRANSISTOR
	Q565	FMQ1	TRANSISTOR
	Q566	2SA1774(RS)	TRANSISTOR
	Q571	2SA1577(PQR)	TRANSISTOR
	Q572	2SA1577(PQR)	TRANSISTOR
	Q573	DTC144EE	TRANSISTOR
	Q574	DTA144EE	TRANSISTOR
	Q575	2SA1577(PQR)	TRANSISTOR
	Q576	DTC144EE	TRANSISTOR
	Q577	2SA1577(PQR)	TRANSISTOR
	Q578	DTC144EE	TRANSISTOR
	Q579	DTA144EE	TRANSISTOR
	Q580	DTA144EE	TRANSISTOR
	Q581	2SA1577(PQR)	TRANSISTOR
	Q582	2SA1577(PQR)	TRANSISTOR
	Q583	DTC144EE	TRANSISTOR
	Q584	DTC144EE	TRANSISTOR
	Q585	DTC144EE	TRANSISTOR
	Q586	2SA1577(PQR)	TRANSISTOR
	D102	RB451F	DIODE
	D103	DAN222	DIODE
		or MA132WK	DIODE
	D104	MA132WA	DIODE
	D105	DAN222	DIODE
	D106	MA8068	DIODE
		or DTZ6.8	ZENER DIODE
		or DTZ7.5	ZENER DIODE
	D107	MA8068	DIODE
		or DTZ6.8	ZENER DIODE
		or DTZ7.5	ZENER DIODE
	D251	DAN222	DIODE
		or MA132WK	DIODE
	D252	DAN222	DIODE
		or MA132WK	DIODE
	D301	DAN222	DIODE
	D302	RB451F	DIODE
	D304	RD6.8M(B1)	ZENER DIODE
	D305	RD6.8M(B1)	ZENER DIODE
	D310	DAN222	DIODE
	D505	DAN222	DIODE
		or MA132WK	DIODE
	D506	DAN222	DIODE
		or MA132WK	DIODE
	D507	DAN222	DIODE
		or MA132WK	DIODE
	D509	DAN222	DIODE
		or MA132WK	DIODE
	D510	DAN222	DIODE
		or MA132WK	DIODE
	D512	DAP222	DIODE
		or MA132WA	DIODE
	D514	DAN222	DIODE
		or MA132WK	DIODE
	D515	DAN222	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
	or MA132WK	DIODE	
D517	DAN222	DIODE	
	or MA132WK	DIODE	
D519	DAN222	DIODE	
	or MA132WK	DIODE	
D520	DAN222	DIODE	
	or MA132WK	DIODE	
D521	DAN222	DIODE	
	or MA132WK	DIODE	
D526	DAN222	DIODE	
	or MA132WK	DIODE	
D531	DAP222	DIODE	
	or MA132WA	DIODE	
D532	DAP222	DIODE	
	or MA132WA	DIODE	
R3	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R6	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R7	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R8	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R9	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R10	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R11	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R12	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R13	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R14	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R30	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R31	NRSA63J-471N	RESISTOR	470Ω,1/16W
R32	NRSA63J-471N	RESISTOR	470Ω,1/16W
R33	NRSA63J-471N	RESISTOR	470Ω,1/16W
R34	NRSA63J-271N	RESISTOR	270Ω,1/16W
R35	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R36	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R37	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R38	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R39	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R40	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R41	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R42	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R43	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R44	NRSA63J-221N	RESISTOR	220Ω,1/16W
R45	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R46	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R47	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R48	NRSA63J-121N	RESISTOR	120Ω,1/16W
R49	NRSA63J-100N	RESISTOR	10Ω,1/16W
R50	NRSA63J-470N	RESISTOR	47Ω,1/16W
R51	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R52	NRSA63J-121N	RESISTOR	120Ω,1/16W
R53	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R54	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R55	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R56	NRSA63J-681N	RESISTOR	680Ω,1/16W
R57	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R58	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R59	NRSA63J-133N	RESISTOR	13KΩ,1/16W
R60	NVP1201-103N	V RESISTOR,AUDIO PB LEVEL	10KΩ,1/2W
R61	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R62	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R63	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R64	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R65	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R66	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R67	NRSA63J-471N	RESISTOR	470Ω,1/16W
R68	NRSA63J-224N	RESISTOR	220KΩ,1/16W
R69	NRSA63J-331N	RESISTOR	330Ω,1/16W
R70	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R71	NRVA63D-513N	RESISTOR	51KΩ,1/16W
R72	NRVA63D-513N	RESISTOR	51KΩ,1/16W
R73	NRVA63D-243N	RESISTOR	24KΩ,1/16W
R74	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R75	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R76	NRSA63J-331N	RESISTOR	330Ω,1/16W
R77	NRVA63D-513N	RESISTOR	51KΩ,1/16W
R78	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R82	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R83	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R84	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R85	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R86	NVP1201-473N	V RESISTOR,BIAS LEVEL	47KΩ,1/2W
R87	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R88	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R89	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R90	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R91	NRSA63J-821N	RESISTOR	820Ω,1/16W
R92	NRSA63J-271N	RESISTOR	270Ω,1/16W
R93	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R94	NRSA63J-101N	RESISTOR	100Ω,1/16W
R95	NRSA63J-101N	RESISTOR	100Ω,1/16W
R96	NRSA63J-101N	RESISTOR	100Ω,1/16W
R99	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R101	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R102	NRSA63J-561N	RESISTOR	560Ω,1/16W
R103	NVP1201-474N	V RESISTOR,PB SWICHING POINT	470KΩ,1/2W
R104	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R107	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R108	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R112	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R120	NRVA62D-103N	RESISTOR	10KΩ,1/16W
R121	NRVA62D-123N	RESISTOR	12KΩ,1/16W
R122	NRVA62D-152N	RESISTOR	1.5KΩ,1/16W
R123	NRVA62D-223N	RESISTOR	22KΩ,1/16W
R124	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R125	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R126	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R127	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R128	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R129	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R130	NRSA63J-105N	RESISTOR	1MΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R131	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R132	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R133	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R135	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R136	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R137	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R138	NRSA63J-681N	RESISTOR	680Ω,1/16W
R139	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R140	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R141	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R142	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R143	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R144	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R145	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R146	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R147	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R148	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R149	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R151	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R152	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R153	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R154	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R155	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R156	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R162	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R163	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R164	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R165	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R170	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R172	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R173	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R174	NRSA63J-274N	RESISTOR	270KΩ,1/16W
R175	NRSA63J-684N	RESISTOR	680KΩ,1/16W
R176	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R177	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R180	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R181	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R182	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R183	NRSA63J-331N	RESISTOR	330Ω,1/16W
R185	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R186	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R188	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R189	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R190	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R191	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R192	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R193	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R194	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R196	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R198	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R199	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R200	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R202	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R203	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R204	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R205	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R206	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R212	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R213	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R214	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R215	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R216	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R218	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R225	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R226	NRSA63J-561N	RESISTOR	560Ω,1/16W
R227	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R228	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R229	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R230	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R231	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R232	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R233	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R235	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R251	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R252	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R253	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R254	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R255	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R257	NRSA63J-121N	RESISTOR	120Ω,1/16W
R258	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R261	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R262	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R263	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R264	YU41353-R68N	RESISTOR	0.68Ω,1/2W
R266	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R267	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R268	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R269	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R270	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R276	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R277	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R278	NRSA63J-681N	RESISTOR	680Ω,1/16W
R279	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R280	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R281	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R282	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R283	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R284	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R285	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R301	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R302	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R303	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R304	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R305	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R306	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R307	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R309	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R310	NRSA63J-751N	RESISTOR	750Ω,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R311	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R312	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R313	NRSA63J-101N	RESISTOR	100Ω,1/16W
R314	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R315	NRVA62D-363N	RESISTOR	36KΩ,1/16W
R316	NRVA62D-273N	RESISTOR	27KΩ,1/16W
R317	NRVA62D-683N	RESISTOR	68KΩ,1/16W
R318	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R319	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R320	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R321	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R322	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R323	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R324	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R325	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R326	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R327	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R328	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R329	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R330	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R331	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R332	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R333	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R334	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R335	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R336	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R337	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R338	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R339	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R340	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R341	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R342	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R343	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R344	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R345	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R346	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R347	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R348	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R349	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R350	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R351	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R352	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R353	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R354	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R355	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R356	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R357	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R358	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R359	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R360	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R361	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R362	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R363	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R364	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R365	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R366	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R367	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R368	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R369	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R370	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R371	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R372	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R373	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R374	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R375	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R376	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R379	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R380	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R381	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R382	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R390	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R392	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R393	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R394	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R395	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R396	NRSA63J-224N	RESISTOR	220KΩ,1/16W
R397	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R398	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R399	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R401	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R402	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R403	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R404	NRVA63D-303N	RESISTOR	30KΩ,1/16W
R405	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R406	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R407	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R408	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R450	NRSA63J-243N	RESISTOR	24KΩ,1/16W
R451	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R452	NRVA63D-103N	RESISTOR	10KΩ,1/16W
R453	NRVA63D-103N	RESISTOR	10KΩ,1/16W
R454	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R455	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R456	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R501	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R502	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R505	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R506	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R507	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R508	NRSA63J-271N	RESISTOR	270Ω,1/16W
R509	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R510	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R511	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R512	NRSA63J-471N	RESISTOR	470Ω,1/16W
R513	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R514	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R515	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R516	NRSA63J-151N	RESISTOR	150Ω,1/16W
R517	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R518	NRSA63J-331N	RESISTOR	330Ω,1/16W
R519	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R520	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R521	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R522	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R523	NRSA63J-271N	RESISTOR	270Ω,1/16W
R524	NRSA63J-511N	RESISTOR	510Ω,1/16W
R525	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R526	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R527	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R528	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R529	NRSA63J-753N	RESISTOR	75KΩ,1/16W
R530	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R531	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R532	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R534	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R535	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R537	ERSL39J-102	RESISTOR	1KΩ,1/8W
R538	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R539	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R540	NRSA63J-302N	RESISTOR	3KΩ,1/16W
R541	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R542	NRSA63J-431N	RESISTOR	430Ω,1/16W
R544	NRSA63J-471N	RESISTOR	470Ω,1/16W
R545	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R546	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R547	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R548	NRSA63J-680N	RESISTOR	68Ω,1/16W
R549	NRSA63J-680N	RESISTOR	68Ω,1/16W
R550	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R551	NRSA63J-681N	RESISTOR	680Ω,1/16W
R552	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R553	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R555	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R556	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R559	NRSA63J-561N	RESISTOR	560Ω,1/16W
R561	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R562	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R564	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R565	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R567	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R568	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R569	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R570	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R571	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R572	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R573	NRSA63J-184N	RESISTOR	180KΩ,1/16W
R574	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R575	NRSA63J-561N	RESISTOR	560Ω,1/16W
R576	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R578	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R581	NRSA63J-471N	RESISTOR	470Ω,1/16W
R582	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R583	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R585	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R586	NRSA63J-391N	RESISTOR	390Ω,1/16W
R589	NRSA63J-0R0A	RESISTOR	0Ω,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R590	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R591	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R592	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R593	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R594	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R595	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R596	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R597	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R598	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R599	NRSA63J-431N	RESISTOR	430Ω,1/16W
R600	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R601	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R602	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R603	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R604	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R605	NRSA63J-471N	RESISTOR	470Ω,1/16W
R606	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R607	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R608	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R610	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R611	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R612	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R616	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R625	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R626	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R627	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R628	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R629	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R630	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R633	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R634	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R635	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R636	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
R637	NRSA63J-271N	RESISTOR	270Ω,1/16W
R639	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R640	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R641	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R644	NRSA63J-101N	RESISTOR	100Ω,1/16W
R645	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R646	NRSA63J-681N	RESISTOR	680Ω,1/16W
R650	NRSA63J-471N	RESISTOR	470Ω,1/16W
R661	NRSA63J-221N	RESISTOR	220Ω,1/16W
R662	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R665	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R667	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R668	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R669	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R670	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R671	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R672	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R673	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R674	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R675	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R676	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R677	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R678	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R679	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R680	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R681	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R682	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R683	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R684	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R685	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	R686	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R687	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	R688	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R689	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R690	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	R691	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
	R701	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R702	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R711	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R713	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R801	NVP1301-222N	V RESISTOR,EE Y LEVEL	2.2KΩ
	R802	NVP1301-152N	V RESISTOR,SUB EMPHA INPUT LEVEL	1.5KΩ
	R803	NVP1301-152N	V RESISTOR,SUB EMPHA OUTPUT LEVEL	1.5KΩ
	R804	NVP1301-103N	V RESISTOR,N WHITE CLIP	10KΩ
	R805	NVP1301-472N	V RESISTOR,S WHITE CLIP	4.7KΩ
	R806	NVP1301-223N	V RESISTOR,S DARK CLIP	22KΩ
	R807	NVP1301-103N	V RESISTOR,N DARK CLIP	10KΩ
	R808	NVP1301-103N	V RESISTOR,S DEVIATION	10KΩ
	R809	NVP1301-103N	V RESISTOR,N DEVIATION	10KΩ
	R810	NVP1301-333N	V RESISTOR,S CARRIER	33KΩ
	R811	NVP1301-473N	V RESISTOR,N CARRIER	47KΩ
	R812	NVP1201-681N	V RESISTOR,S REC FM LEVEL	680Ω,1/2W
	R813	NVP1201-681N	V RESISTOR,N REC FM LEVEL	680Ω,1/2W
	R814	NVP1301-103N	V RESISTOR,N PB Y LEVEL	10KΩ
	R815	NVP1301-103N	V RESISTOR,S PB Y LEVEL	10KΩ
	R816	NVP1301-152N	V RESISTOR,YNR INPUT LEVEL	1.5KΩ
	R817	NVP1201-222N	V RESISTOR,S SP VIDEO EQ	2.2KΩ,1/2W
	R818	NVP1201-222N	V RESISTOR,S EP VIDEO EQ	2.2KΩ,1/2W
	R819	NVP1201-472N	V RESISTOR,N SP VIDEO EQ	4.7KΩ,1/2W
	R820	NVP1201-102N	V RESISTOR,N EP VIDEO EQ	1KΩ,1/2W
	R821	NVP1201-102N	V RESISTOR,PB COLOR LEVEL	1KΩ,1/2W
	R823	NVP1201-222N	V RESISTOR,PB BURST LEVEL	2.2KΩ,1/2W
	R824	NVP1201-471N	V RESISTOR,S REC COLOR LEVEL	470Ω,1/2W
	R825	NVP1201-681N	V RESISTOR,N REC COLOR LEVEL	680Ω,1/2W
	R826	NVP1301-152N	V RESISTOR,S EE Y LEVEL	1.5KΩ,1/2W
	R828	NVP1301-222N	V RESISTOR,EE BURST LEVEL	2.2KΩ,1/2W
	C2	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
	C3	NEE21DM-226R	TANTAL CAPACITOR	22μF,20V
	C4	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
	C5	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
	C7	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C8	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
	C9	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
	C11	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
	C12	NEE21DM-226R	TANTAL CAPACITOR	22μF,20V
	C32	YU40688-336N	E CAPACITOR	33μF,10V
	C33	YU41614-226N	E CAPACITOR	22μF,6.3V
	C34	NEA31EM-475N	E CAPACITOR	4.7μF,25V
	C35	NEA31CM-106N	E CAPACITOR	10μF,16V
	C38	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
	C39	NEH10JM-226N	E CAPACITOR	22μF,6.3V
	C40	NCB31HK-472A	CAPACITOR	0.0047μF,50V
	C41	NEH11CM-106N	E CAPACITOR	10μF,16V
	C42	NEE20GM-106R	TANTAL CAPACITOR	10μF,4.0V
	C43	NCB31HK-182A	CAPACITOR	0.0018μF,50V
	C44	QCYA1HK-333	CAPACITOR	0.033μF,50V
	C45	NCS31HJ-221A	CAPACITOR	220pF,50V
	C46	NEA31HM-105N	E CAPACITOR	1μF,50V
	C47	NCB31HK-272A	CAPACITOR	0.0027μF,50V
	C48	NCB31HK-681A	CAPACITOR	680pF,50V
	C49	NEA30GM-226N	E CAPACITOR	22μF,4.0V
	C50	NCR31CK-223A	CAPACITOR	0.022μF,16V
	C51	YU40688-336N	E CAPACITOR	33μF,10V
	C52	NEE21EM-474R	TANTAL CAPACITOR	0.47μF,25V
	C53	NCB31HK-682A	CAPACITOR	0.0068μF,50V
	C54	NCB31HK-332A	CAPACITOR	0.0033μF,50V
	C55	NEE21VM-104R	TANTAL CAPACITOR	0.1μF,35V
	C57	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C58	NCB31HK-471A	CAPACITOR	470pF,50V
	C59	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
	C60	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
	C61	NCT08CH-101A	CAPACITOR	100pF,50V
	C62	NCT08CH-101A	CAPACITOR	100pF,50V
	C63	NCT08CH-101A	CAPACITOR	100pF,50V
	C64	NCT08CH-101A	CAPACITOR	100pF,50V
	C65	NCT08CH-101A	CAPACITOR	100pF,50V
	C66	NCT08CH-101A	CAPACITOR	100pF,50V
	C67	NCT08CH-101A	CAPACITOR	100pF,50V
	C68	NCT08CH-101A	CAPACITOR	100pF,50V
	C71	YU40688-336N	E CAPACITOR	33μF,10V
	C72	NCB31HK-392A	CAPACITOR	0.0039μF,50V
	C73	NCS31HJ-561A	CAPACITOR	560pF,50V
	C74	QFZ9011-333	CAPACITOR	0.033μF
	C75	NCB31HK-471A	CAPACITOR	470pF,50V
	C76	YU41415-J156B	TANTAL CAPACITOR	15μF,6.3V
	C77	QEE81AM-476	TANTAL CAPACITOR	47μF,10V
	C78	NEE20JM-475R	TANTAL CAPACITOR	4.7μF,6.3V
	C101	NEH11CM-106N	E CAPACITOR	10μF,16V
	C102	NEH11CM-106N	E CAPACITOR	10μF,16V
	C103	NCF31CZ-224A	CAPACITOR	0.22μF,16V
	C105	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C106	NCB31HK-392A	CAPACITOR	0.0039μF,50V
	C110	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C111	QCY81EK-104	CAPACITOR	0.1μF,25V
	C112	NCB31HK-222A	CAPACITOR	0.0022μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C113	NCB31EK-223A	CAPACITOR	0.022μF,25V
C114	NCB31HK-102A	CAPACITOR	0.001μF,50V
C115	NCB31HK-102A	CAPACITOR	0.001μF,50V
C116	QEPA1CM-226	E CAPACITOR	22μF,16V
C117	QCF81CZ-105	CAPACITOR	1μF,16V
C120	NCB31EK-223A	CAPACITOR	0.022μF,25V
C121	QCY81CK-224Z	CAPACITOR	0.22μF,16V
C122	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C123	NCB31EK-223A	CAPACITOR	0.022μF,25V
C124	NCB31HK-102A	CAPACITOR	0.001μF,50V
C125	NCB31HK-102A	CAPACITOR	0.001μF,50V
C126	QEPA1CM-106	E CAPACITOR	10μF,16V
C127	QCF81CZ-105	CAPACITOR	1μF,16V
C128	QCF81CZ-105	CAPACITOR	1μF,16V
C132	NCB31EK-103A	CAPACITOR	0.01μF,25V
C134	NCB31HK-102A	CAPACITOR	0.001μF,50V
C135	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C136	NCT06CH-101A	CAPACITOR	100pF,50V
C138	NCB31HK-562A	CAPACITOR	0.0056μF,50V
C139	QCFA1CZ-105	CAPACITOR	1μF,16V
C140	QCFA1CZ-105	CAPACITOR	1μF,16V
C141	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C145	NCB31EK-103A	CAPACITOR	0.01μF,25V
C147	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C148	NCB31EK-103A	CAPACITOR	0.01μF,25V
C149	NCB31EK-103A	CAPACITOR	0.01μF,25V
C150	NCB31EK-103A	CAPACITOR	0.01μF,25V
C151	NCR21CK-473A	CAPACITOR	0.047μF,16V
C152	NCB31EK-103A	CAPACITOR	0.01μF,25V
C153	NCB31EK-103A	CAPACITOR	0.01μF,25V
C154	NCB31EK-103A	CAPACITOR	0.01μF,25V
C155	NEH11CM-106N	E CAPACITOR	10μF,16V
C156	NCB31HK-102A	CAPACITOR	0.001μF,50V
C160	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C161	NCT06CH-101A	CAPACITOR	100pF,50V
C162	NCB31HK-472A	CAPACITOR	0.0047μF,50V
C175	NCS31HJ-101A	CAPACITOR	100pF,50V
C176	NCS31HJ-101A	CAPACITOR	100pF,50V
C177	NCS31HJ-101A	CAPACITOR	100pF,50V
C251	NEH11CM-106N	E CAPACITOR	10μF,16V
C252	NEH11HM-474N	E CAPACITOR	0.47μF,50V
C253	NCB31HK-331A	CAPACITOR	330pF,50V
C255	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C257	NCB31EK-103A	CAPACITOR	0.01μF,25V
C258	QCYA1EK-104	CAPACITOR	0.1μF,25V
C259	QCFA1CZ-105	CAPACITOR	1μF,16V
C260	QCFA1CZ-105	CAPACITOR	1μF,16V
C261	QCFA1CZ-105	CAPACITOR	1μF,16V
C265	NCR21CK-473A	CAPACITOR	0.047μF,16V
C266	NEH11HM-105N	E CAPACITOR	1μF,50V
C267	NCB31EK-103A	CAPACITOR	0.01μF,25V
C268	NCB31HK-681A	CAPACITOR	680pF,50V
C269	NCB31HK-332A	CAPACITOR	0.0033μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C274	NCB31HK-102A	CAPACITOR	0.001μF,50V
C276	NCB31EK-223A	CAPACITOR	0.022μF,25V
C277	NCB31EK-223A	CAPACITOR	0.022μF,25V
C278	NCB31EK-223A	CAPACITOR	0.022μF,25V
C279	QCF81CZ-105	CAPACITOR	1μF,16V
C280	QCF81CZ-105	CAPACITOR	1μF,16V
C281	QCF81CZ-105	CAPACITOR	1μF,16V
C282	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C283	QCF81CZ-105	CAPACITOR	1μF,16V
C285	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C286	NCS31HJ-100A	CAPACITOR	10pF,50V
C301	YU40688-336N	E CAPACITOR	33μF,10V
C302	YU40688-336N	E CAPACITOR	33μF,10V
C303	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C304	NCB31EK-103A	CAPACITOR	0.01μF,25V
C305	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C306	NCB31EK-103A	CAPACITOR	0.01μF,25V
C307	NCB31EK-103A	CAPACITOR	0.01μF,25V
C308	NCB31EK-103A	CAPACITOR	0.01μF,25V
C309	NCS31HJ-220A	CAPACITOR	22pF,50V
C310	NCS31HJ-220A	CAPACITOR	22pF,50V
C311	NCS31HJ-220A	CAPACITOR	22pF,50V
C312	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C313	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C314	NCB31EK-472A	CAPACITOR	0.0047μF,25V
C315	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C316	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C317	NCB31EK-103A	CAPACITOR	0.01μF,25V
C401	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C402	NCB31EK-103A	CAPACITOR	0.01μF,25V
C403	QCYA1EK-104	CAPACITOR	0.1μF,25V
C404	QCFA1CZ-105	CAPACITOR	1μF,16V
C405	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C406	NCT06CH-101A	CAPACITOR	100pF,50V
C501	NEE21CM-475R	TANTAL CAPACITOR	4.7μF,16V
C502	NEA31VM-225N	E CAPACITOR	2.2μF,35V
C503	NEA31VM-225N	E CAPACITOR	2.2μF,35V
C504	NCB31EK-103A	CAPACITOR	0.01μF,25V
C505	YU41415-J336C	TANTAL CAPACITOR	33μF,6.3V
C507	NEA31EM-475N	E CAPACITOR	4.7μF,25V
C508	NCT08CH-301A	CAPACITOR	300pF,50V
C509	NCT08CH-301A	CAPACITOR	300pF,50V
C510	NCT08CH-221A	CAPACITOR	220pF,50V
C511	NCT08CH-820A	CAPACITOR	82pF,50V
C512	NCT08CH-271A	CAPACITOR	270pF,50V
C513	NCS31HJ-181A	CAPACITOR	180pF,50V
C514	NCS31HJ-470A	CAPACITOR	47pF,50V
C515	NCT08CH-301A	CAPACITOR	300pF,50V
C516	NCT08CH-271A	CAPACITOR	270pF,50V
C517	NCS31HJ-270A	CAPACITOR	27pF,50V
C518	NEA30GM-226N	E CAPACITOR	22μF,4.0V
C526	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C528	NCB31EK-103A	CAPACITOR	0.01μF,25V
C529	NCB31EK-103A	CAPACITOR	0.01μF,25V
C530	QEM70JM-107	E CAPACITOR	100μF,6.3V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C531	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C533	NEE21AM-475R	TANTAL CAPACITOR	4.7μF,10V
	C534	NCS31HJ-120A	CAPACITOR	12pF,50V
	C535	QCYA1CK-124	CAPACITOR	0.12μF,16V
	C537	NCS31HJ-561A	CAPACITOR	560pF,50V
	C538	NCS31HJ-270A	CAPACITOR	27pF,50V
	C539	NCS31HJ-270A	CAPACITOR	27pF,50V
	C540	NCS31HJ-270A	CAPACITOR	27pF,50V
	C541	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C542	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C545	NCS31HJ-391A	CAPACITOR	390pF,50V
	C546	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C547	NEA31VM-225N	E CAPACITOR	2.2μF,35V
	C548	NEA31EM-475N	E CAPACITOR	4.7μF,25V
	C549	NEE21VM-104R	TANTAL CAPACITOR	0.1μF,35V
	C550	QEM70JM-107	E CAPACITOR	100μF,6.3V
	C551	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C552	NEE20GM-475R	TANTAL CAPACITOR	4.7μF,4.0V
	C553	NEA31CM-106N	E CAPACITOR	10μF,16V
	C555	NEA30GM-226N	E CAPACITOR	22μF,4.0V
	C556	NEA31HM-474N	E CAPACITOR	0.47μF,50V
	C557	NEA30GM-226N	E CAPACITOR	22μF,4.0V
	C558	QEE81AM-476	TANTAL CAPACITOR	47μF,10V
	C559	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C560	YU41415-A226C	TANTAL CAPACITOR	22μF,10V
	C561	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C562	NEA31CM-106N	E CAPACITOR	10μF,16V
	C563	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
	C564	NEA31VM-225N	E CAPACITOR	2.2μF,35V
	C565	NEA31HM-474N	E CAPACITOR	0.47μF,50V
	C566	NEA31HM-474N	E CAPACITOR	0.47μF,50V
	C567	NEA31HM-474N	E CAPACITOR	0.47μF,50V
	C568	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C569	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C570	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C571	NCS31HJ-390A	CAPACITOR	39pF,50V
	C573	NCS31HJ-270A	CAPACITOR	27pF,50V
	C574	NCS31HJ-561A	CAPACITOR	560pF,50V
	C575	NCS31HJ-391A	CAPACITOR	390pF,50V
	C576	NCS31HJ-181A	CAPACITOR	180pF,50V
	C577	NEE20JM-225R	TANTAL CAPACITOR	2.2μF,6.3V
	C578	QEKA0HM-477	E CAPACITOR	470μF,5.5V
	C581	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C585	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C586	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C587	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C588	NEE21AM-476R	TANTAL CAPACITOR	47μF,10V
	C589	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C590	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C591	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C592	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C593	NCS31HJ-561A	CAPACITOR	560pF,50V
	C594	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C595	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C596	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C598	NCS31HJ-101A	CAPACITOR	100pF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C600	NCS31HJ-561A	CAPACITOR	560pF,50V
	C601	QCYA1EK-563	CAPACITOR	0.056μF,25V
	C602	QCYA1HK-153	CAPACITOR	0.015μF,50V
	C603	NEA31CM-106N	E CAPACITOR	10μF,16V
	C604	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C605	NCS31HJ-390A	CAPACITOR	39pF,50V
	C606	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C607	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C608	NCB31CK-223A	CAPACITOR	0.022μF,16V
	C609	NEA31EM-475N	E CAPACITOR	4.7μF,25V
	C610	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C611	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C612	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C614	NCB31HK-471A	CAPACITOR	470pF,50V
	C615	NEA31VM-225N	E CAPACITOR	2.2μF,35V
	C616	NEA31EM-475N	E CAPACITOR	4.7μF,25V
	C617	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C618	NEA31EM-475N	E CAPACITOR	4.7μF,25V
	C619	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C620	NCS31HJ-100A	CAPACITOR	10pF,50V
	C621	YU40688-476N	E CAPACITOR	47μF,5.5V
	C622	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C623	YU41582-200	TRIMMER CAPACITOR,VXO	20pF
	C624	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C625	NCT06CH-3R0A	CAPACITOR	3pF,50V
	C626	NEA31HM-104N	E CAPACITOR	0.1μF,50V
	C627	NCS31HJ-101A	CAPACITOR	100pF,50V
	C628	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C629	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C630	NEA31HM-104N	E CAPACITOR	0.1μF,50V
	C631	NCS31HJ-220A	CAPACITOR	22pF,50V
	C632	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C633	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C634	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C635	NEA31HM-105N	E CAPACITOR	1μF,50V
	C637	YU40688-476N	E CAPACITOR	47μF,5.5V
	C638	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C639	YU41582-200	TRIMMER CAPACITOR,320FH VCO	20pF
	C651	YU41583-J336M	TANTAL CAPACITOR	33μF,6.3V
	C652	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C653	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C654	YU41583-A106M	TANTAL CAPACITOR	10μF,10V
	C656	NCS31HJ-270A	CAPACITOR	27pF,50V
	C657	NCS31HJ-390A	CAPACITOR	39pF,50V
	L1	YU41135-470	COIL	47μH
	L2	QRS188J-0R0Y	RESISTOR	0Ω,1/8W
	L32	PELN0446	EQUALIZER	
	L33	YU41135-221K	COIL	220μH
⚠	L34	YU41716	OSC COIL	3.8mH
	L101	YU41134-270J	COIL	27μH
	L501	YU41135-470	COIL	47μH
	L504	YU41135-470	COIL	47μH
	L505	YU41134-820J	COIL	82μH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L506	YU41134-180J	COIL	18μH
	L508	YU41135-470	COIL	47μH
	L509	YU41135-470	COIL	47μH
	L522	YU41135-470	COIL	47μH
	L524	YU41134-121J	COIL	120μH
	L526	PU57620-102K	COIL	1mH
	L527	YU40941-682	COIL	6.8mH
	L528	YU41134-180J	COIL	18μH
	L529	YU41134-220J	COIL	22μH
	L530	YU41135-470	COIL	47μH
	L531	YU41134-101J	COIL	100μH
	L532	YU41134-470J	COIL	47μH
	L533	YU41134-220J	COIL	22μH
	L534	YU41135-470	COIL	47μH
	L551	YU41135-470	COIL	47μH
	TRAP1	YU41366	TRAP,FT101	
	TRAP2	YU41364	TRAP,FT102	
	EQ501	PELN0429	EQUALIZER	
	LPF501	YU41667	LOW PASS FILTER	
	LPF502	YU41370	LOW PASS FILTER	
	LPF505	YU41643	LOW PASS FILTER	
	BPF501	YU41798	BAND PASS FILTER	
	BPF502	YU41799	BAND PASS FILTER	
	DL501	PEVB0375	1H DELAY LINE	
⚠	X301	PEVB0372	CRYSTAL RESONATOR	
⚠	X501	PU60323	CRYSTAL RESONATOR	
	SW1	YU41393	PUSH SWITCH	
	DD1	PEAS2067-01-01	DC-DC CONVERTER	
	PS301	SIM-125ST	LE DIODE	
		or SIM-1251ST	LE DIODE	
	SLD1	YU41808	SHIELD PLATE	
	SLD2	YU30632	SHIELD PLATE	
	SLD4	YU41914-1-1	SHIELD PLATE	
	SPC2	YQM30029-106	SPACER	
	SPC3	YU41829-1-1	SHEET	
	SPC5	YQM30029-111	SPACER	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	TP2	YU41389	TEST PIN,REG 5V
	TP3	YU41389	TEST PIN,REG 8V
	TP4	YU41389	TEST PIN,REG 12V
	TP32	YU41389	TEST PIN,AUDIO OUT
	TP33	YU41389	TEST PIN,REC BIAS
	TP34	YU41389	TEST PIN,REC BIAS GND
	TP101	YU41389	TEST PIN,PB CTL
	TP102	YU41389	TEST PIN,CAPSTAN FG
	TP103	YU41389	TEST PIN,AVG FM ENV
	TP104	YU41389	TEST PIN,DRUM MON
	TP105	YU41389	TEST PIN,CAPSTAN MON
	TP106	YU41389	TEST PIN,DRUM PG/PG
	TP107	YU41389	TEST PIN,DRUM FG
	TP108	YU41389	TEST PIN,DRUM PG
	TP109	YU41389	TEST PIN,DRUM FF
	TP401	YU41389	TEST PIN,HD
	TP501	PU56278	TEST POINT,GND
	TP503	YU41389	TEST PIN,C SYNC
	TP504	YU41389	TEST PIN,REC FM OUT
	TP505	YU41389	TEST PIN,EMPHASIS OUT
	TP506	YU41389	TEST PIN,YNR OUT
	TP507	YU41389	TEST PIN,SUB EMPHA OUT
	TP508	YU41389	TEST PIN,SUB EMPHA IN
	TP509	YU41389	TEST PIN,BPF OUT
	TP510	YU41389	TEST PIN,PB COLOR 1
	TP511	YU41389	TEST PIN,PB COLOR 2
	TP512	YU41389	TEST PIN,AFC DET
	TP513	YU41389	TEST PIN,VCXO OUT1
	TP514	YU41389	TEST PIN,VCXO OUT2
	TP515	YU41389	TEST PIN,SUB BM OUT
	CN1	YU41361-30	CAP HOUSING,(BOARD TO BOARD)
	CN2	YU41849-6	CAP HOUSING,(BOARD TO BOARD)
	CN3	YU41356-5	CAP HOUSING
	CN4	YU41354-8	CAP HOUSING
	CN5	YU41361-12	CAP HOUSING,(BOARD TO BOARD)
	CN6	YU41356-4	CAP HOUSING
	CN7	YU41355-15	CAP HOUSING
	CN8	YU41355-15	CAP HOUSING
	CN9	YU41356-2	CAP HOUSING
	CN10	YU41359-18	CAP HOUSING,(BOARD TO BOARD)
	CN12	YU41356-7	CAP HOUSING,(BOARD TO BOARD)
	CN14	YU41359-16	CAP HOUSING,(BOARD TO BOARD)
	CN15	YU41849-12	CAP HOUSING,(BOARD TO BOARD)
	CN16	YU41356-2	CAP HOUSING
	CN17	YU41356-3	CAP HOUSING
	CN18	YU41356-2	CAP HOUSING
	CN19	YU41361-26	CAP HOUSING,(BOARD TO BOARD)
	CN21	YU41359-18	CAP HOUSING,(BOARD TO BOARD)
⚠	CP1	ICP-N25	CIRCUIT PROTECTOR
⚠	CP2	ICP-N20	CIRCUIT PROTECTOR
⚠	CP3	ICP-N38	CIRCUIT PROTECTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
⚠	CP4	ICP-N20	CIRCUIT PROTECTOR	
⚠	CP5	ICP-N38	CIRCUIT PROTECTOR	

- FLY BOARD ASSEMBLY -

	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	YB20447A	FLY BOARD ASSY	
	CN1	YU41740-6	CAP HOUSING,(BOARD TO BOARD)	
	CN2	YU41356-3	CAP HOUSING	

- SW PULSE BOARD ASSEMBLY -

	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA2	YB20564A	SW PULSE BOARD ASSY	
	IC106	TC4071BF	IC	
	IC107	TC7W02F	IC	
	IC108	TC7S02F	IC	
	R114	QRSA08J-752YN	RESISTOR	7.5KΩ,1/10W
	R115	QRSA08J-752YN	RESISTOR	7.5KΩ,1/10W
	R116	QRSA08J-752YN	RESISTOR	7.5KΩ,1/10W
	R117	QRSA08J-752YN	RESISTOR	7.5KΩ,1/10W
	C178	QCSA1HJ-101	CAPACITOR	100pF,50V
	C181	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C182	NCB31EK-103A	CAPACITOR	0.01μF,25V

- TRAP SUB (1) BOARD ASSEMBLY -

	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA3	YB20442J	TRAP SUB(1) BOARD ASSY	
	C532	NCS31HJ-820A	CAPACITOR	82pF,50V
	L503	YU41134-121J	COIL	120μH

- TRAP SUB (2) BOARD ASSEMBLY -

	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA4	YB20442G	TRAP SUB(2) BOARD ASSY	
	C643	NCS31HJ-820A	CAPACITOR	82pF,50V
	L536	YU41134-151J	COIL	150μH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

****

JACK BOARD ASSEMBLY <02>

	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	YB20480A-04	JACK BOARD ASSY	
	IC1	BA3308F	IC	
	Q1	DTC143TU	TRANSISTOR	
	Q2	DTC143XU	TRANSISTOR	
	Q3	2SC4097(QR)	TRANSISTOR	
	Q4	2SC4097(QR)	TRANSISTOR	
	Q5	2SC4081(RS)	TRANSISTOR	
	Q6	2SC4081(RS)	TRANSISTOR	
	Q15	2SC4081(RS)	TRANSISTOR	
	D1	IMN10	DIODE	
	D2	DAP202U	DIODE	
	D4	DA204U	DIODE	
	D5	DA204U	DIODE	
	D6	DA204U	DIODE	
	D7	DA204U	DIODE	
	D10	RLZ8.2B	ZENER DIODE	
	D11	RLZ8.2B	ZENER DIODE	
	R2	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R3	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R4	NRSA63J-393N	RESISTOR	39KΩ,1/16W
	R5	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R6	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R7	NRSA63J-683N	RESISTOR	68KΩ,1/16W
	R8	NRSA63J-823N	RESISTOR	82KΩ,1/16W
	R9	NRSA63J-563N	RESISTOR	56KΩ,1/16W
	R10	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R11	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R12	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R14	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R15	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R17	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R18	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R20	NRSA63J-563N	RESISTOR	56KΩ,1/16W
	R21	NRSA63J-563N	RESISTOR	56KΩ,1/16W
	R22	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	R23	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	R24	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R25	NRSA63J-181N	RESISTOR	180Ω,1/16W
	R26	NRSA63J-181N	RESISTOR	180Ω,1/16W
	R27	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R28	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R29	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R30	NRSA63J-102N	RESISTOR	1KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R31	QRS188J-100YN	RESISTOR	10Ω,1/8W
R33	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R34	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R35	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R37	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R38	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R39	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R40	NRD187J-220N	MLF RESISTOR	22Ω,1/8W
R41	NRD187J-220N	MLF RESISTOR	22Ω,1/8W
R42	NRD187J-220N	MLF RESISTOR	22Ω,1/8W
R43	NRD187J-220N	MLF RESISTOR	22Ω,1/8W
R44	NRD187J-750N	MLF RESISTOR	75Ω,1/8W
R45	NRD187J-750N	MLF RESISTOR	75Ω,1/8W
R46	NRD187J-750N	MLF RESISTOR	75Ω,1/8W
R47	NRD187J-750N	MLF RESISTOR	75Ω,1/8W
R48	NRSA63J-221N	RESISTOR	220Ω,1/16W
R49	NRSA63J-221N	RESISTOR	220Ω,1/16W
R52	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R53	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R54	NRSA63J-151N	RESISTOR	150Ω,1/16W
R55	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R57	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R85	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
C1	YU40688-476N	E CAPACITOR	47μF,5.5V
C2	NEE21CM-225R	TANTAL CAPACITOR	2.2μF,16V
C4	NEE21AM-475R	TANTAL CAPACITOR	4.7μF,10V
C6	NEE21CM-225R	TANTAL CAPACITOR	2.2μF,16V
C7	NCS31HJ-121A	CAPACITOR	120pF,50V
C8	NCS31HJ-121A	CAPACITOR	120pF,50V
C9	NCS31HJ-101A	CAPACITOR	100pF,50V
C10	NCS31HJ-151A	CAPACITOR	150pF,50V
C11	NCS31HJ-151A	CAPACITOR	150pF,50V
C12	NCS31HJ-101A	CAPACITOR	100pF,50V
C13	NEN11HM-105N	E CAPACITOR	1μF,50V
C14	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C15	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C16	NEN11HM-105N	E CAPACITOR	1μF,50V
C17	QER40JM-476	E CAPACITOR	47μF,6.3V
C20	NCB31HK-102A	CAPACITOR	0.001μF,50V
C21	NCB31HK-102A	CAPACITOR	0.001μF,50V
C22	NCB31HK-102A	CAPACITOR	0.001μF,50V
C23	NCB31HK-102A	CAPACITOR	0.001μF,50V
C24	QER40GM-477	E CAPACITOR	470μF,4.0V
C25	QCYA1EK-104	CAPACITOR	0.1μF,25V
C26	QCYA1EK-104	CAPACITOR	0.1μF,25V
C27	QER40GM-477	E CAPACITOR	470μF,4.0V
C28	NEA31CM-106N	E CAPACITOR	10μF,16V
C36	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
C37	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
C38	QCYA1HK-153	CAPACITOR	0.015μF,50V
C39	QCYA1HK-153	CAPACITOR	0.015μF,50V
C76	YU40688-476N	E CAPACITOR	47μF,5.5V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
J1	YQ42213	AV JACK
SLD1	YU41931	SHIELD SHEET
SPC1	YQM30029-77	SPACER
WR1	ML-Y00573A	JACK BOARD WIRE,CN3
WR2	ML-Y00595C	REMOTE WIRE,CN4
TP1	YU41389	TEST PIN,VIDEO OUT
TP2	YU41389	TEST PIN,S COLOR OUT
TP3	YU41389	TEST PIN,S Y OUT
TP4	YU41389	TEST PIN,COLOR OUT
CN1	PEMC0822-6	CAP HOUSING,(BOARD TO BOARD)
CN2	YU41358-26	CAP HOUSING,(BOARD TO BOARD)

– MIC AMP SUB BOARD ASSEMBLY –

PWBA1	YB20561A	MIC AMP SUB BOARD ASSY	
Q7	2SC4081(RS)	TRANSISTOR	
Q8	2SA1576(RS)	TRANSISTOR	
Q9	2SA1576(RS)	TRANSISTOR	
Q10	2SA1576(RS)	TRANSISTOR	
Q11	2SC4081(RS)	TRANSISTOR	
Q12	2SA1576(RS)	TRANSISTOR	
Q13	2SA1576(RS)	TRANSISTOR	
Q14	2SA1576(RS)	TRANSISTOR	
R61	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R62	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R63	NRVA63D-103N	RESISTOR	10KΩ,1/16W
R64	NRVA63D-822N	RESISTOR	8.2KΩ,1/16W
R65	NRVA63D-222N	RESISTOR	2.2KΩ,1/16W
R66	NRVA63D-224N	RESISTOR	220KΩ,1/16W
R67	NRVA63D-124N	RESISTOR	120KΩ,1/16W
R68	NRVA63D-821N	RESISTOR	820Ω,1/16W
R69	NRVA63D-472N	RESISTOR	4.7KΩ,1/16W
R70	NRVA63D-561N	RESISTOR	560Ω,1/16W
R71	NRVA63D-471N	RESISTOR	470Ω,1/16W
R72	NRVA63D-222N	RESISTOR	2.2KΩ,1/16W
R73	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R74	NRVA63D-104N	RESISTOR	100KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R75	NRVA63D-103N	RESISTOR	10KΩ,1/16W
R76	NRVA63D-822N	RESISTOR	8.2KΩ,1/16W
R77	NRVA63D-222N	RESISTOR	2.2KΩ,1/16W
R78	NRVA63D-224N	RESISTOR	220KΩ,1/16W
R79	NRVA63D-124N	RESISTOR	120KΩ,1/16W
R80	NRVA63D-821N	RESISTOR	820Ω,1/16W
R81	NRVA63D-472N	RESISTOR	4.7KΩ,1/16W
R82	NRVA63D-561N	RESISTOR	560Ω,1/16W
R83	NRVA63D-471N	RESISTOR	470Ω,1/16W
R84	NRVA63D-222N	RESISTOR	2.2KΩ,1/16W
C42	QCYA1CK-124	CAPACITOR	0.12μF,16V
C43	NCS31HJ-101A	CAPACITOR	100pF,50V
C44	NCB31EK-223A	CAPACITOR	0.022μF,25V
C45	QCYA1EK-104	CAPACITOR	0.1μF,25V
C46	QCYA1EK-683	CAPACITOR	0.068μF,25V
C47	QCYA1EK-223	CAPACITOR	0.022μF,25V
C48	PECA0818-105K	CAPACITOR	
C49	QCYA1CK-124	CAPACITOR	0.12μF,16V
C50	NCS31HJ-101A	CAPACITOR	100pF,50V
C51	NCB31EK-223A	CAPACITOR	0.022μF,25V
C52	QCYA1EK-104	CAPACITOR	0.1μF,25V
C53	QCYA1EK-683	CAPACITOR	0.068μF,25V
C54	QCYA1HK-333	CAPACITOR	0.033μF,50V
C55	PECA0818-105K	CAPACITOR	
C75	NCB31HK-103A	CAPACITOR	0.01μF,50V

– AUDIO TRAP BOARD ASSEMBLY –

PWBA2	YB20570A2	AUDIO TRAP BOARD ASSY	
Q17	2SC4081(RS)	TRANSISTOR	
Q18	2SC4081(RS)	TRANSISTOR	
Q19	2SA1576(RS)	TRANSISTOR	
Q20	2SA1576(RS)	TRANSISTOR	
R13	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R16	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R127	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R128	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R129	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R130	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R131	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R132	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R133	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R134	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R135	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R136	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R137	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R138	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R139	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R140	NRVA63D-104N	RESISTOR	100KΩ,1/16W
R141	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R142	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R143	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R144	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R145	NRSA63J-391N	RESISTOR	390Ω,1/16W
R146	NRSA63J-391N	RESISTOR	390Ω,1/16W
C79	NCS31HJ-101A	CAPACITOR	100pF,50V
C80	NCS31HJ-101A	CAPACITOR	100pF,50V
C81	NCS31HJ-681A	CAPACITOR	680pF,50V
C82	NCS31HJ-681A	CAPACITOR	680pF,50V
C83	NCS31HJ-681A	CAPACITOR	680pF,50V
C84	NCS31HJ-681A	CAPACITOR	680pF,50V
C85	NCS31HJ-681A	CAPACITOR	680pF,50V
C86	NCS31HJ-681A	CAPACITOR	680pF,50V
C87	NCS31HJ-681A	CAPACITOR	680pF,50V
C88	NCS31HJ-681A	CAPACITOR	680pF,50V
C89	NEE21AM-335R	TANTAL CAPACITOR	3.3μF,10V
C90	NEE21AM-335R	TANTAL CAPACITOR	3.3μF,10V

* * *

PRE REC BOARD ASSEMBLY <03>

PWBA	BW7965D	IC,PRE-REC AMP

* * *

SENSOR BOARD ASSEMBLY <04>

PWBA	YQ30621C-3	SENSOR BOARD ASSY
SPC1	YQ42079	SPACER

* * *

TRIGGER BOARD ASSEMBLY <05>

PWBA	YB20360A-01	TRIGGER BOARD ASSY
SW1	YU41685	TACT SWITCH
CN1	ML-Y00491B	TRIGGER BOARD WIRE

****

A/V SUB BOARD ASSEMBLY <06>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20445A-03-C2	A/V SUB BOARD ASSY	
IC1	MM1031XM	IC	
IC2	NJM2234M	IC	
IC3	MM1031XM	IC	
IC101	AN3935NFHP	IC	
IC102	BA15218F	IC	
	or XRA15218F	IC	
	or M5218AFP	IC	
Q1	2SA1577(PQR)	TRANSISTOR	
Q2	DTC144EE	TRANSISTOR	
Q3	DTC144EE	TRANSISTOR	
Q4	2SC4617(RS)	TRANSISTOR	
Q5	UMW1	TRANSISTOR	
Q6	2SA1774(QRS)	TRANSISTOR	
Q8	2SC4617(RS)	TRANSISTOR	
Q9	2SA1774(QRS)	TRANSISTOR	
Q106	2SC4617(RS)	TRANSISTOR	
Q107	DTC144EE	TRANSISTOR	
Q108	DTC144EE	TRANSISTOR	
Q109	DTC144EE	TRANSISTOR	
Q110	DTC144EE	TRANSISTOR	
Q111	DTC144EE	TRANSISTOR	
Q112	2SC4617(RS)	TRANSISTOR	
Q113	2SC4617(RS)	TRANSISTOR	
Q114	DTA144EE	TRANSISTOR	
Q115	2SC4617(RS)	TRANSISTOR	
Q116	2SC4617(RS)	TRANSISTOR	
Q119	2SC4617(RS)	TRANSISTOR	
Q120	2SC4617(RS)	TRANSISTOR	
Q121	2SC4617(RS)	TRANSISTOR	
Q122	2SC4617(RS)	TRANSISTOR	
Q124	DTC144EE	TRANSISTOR	
Q125	DTC144EE	TRANSISTOR	
Q127	DTC144EE	TRANSISTOR	
Q128	DTC144EE	TRANSISTOR	
Q129	DTC144EE	TRANSISTOR	
D1	DA221	DIODE	
D2	DA221	DIODE	
D3	DA221	DIODE	
D4	DA221	DIODE	
D5	RD22M(B1-3)	ZENER DIODE	
D101	DAP222	DIODE	
D102	DAP222	DIODE	
D103	DA221	DIODE	
D104	DAP222	DIODE	
D105	DAP222	DIODE	
D106	DAN222	DIODE	
D107	DAP222	DIODE	
D108	DAP222	DIODE	
R1	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R2	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R3	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R4	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R5	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R6	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R7	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R8	NRSA63J-561N	RESISTOR	560Ω,1/16W
R9	NRSA63J-471N	RESISTOR	470Ω,1/16W
R10	NRSA63J-471N	RESISTOR	470Ω,1/16W
R11	QRSA08J-331Y	RESISTOR	330Ω,1/10W
R12	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R16	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R17	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R18	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R19	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R20	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R101	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R102	NRSA63J-331N	RESISTOR	330Ω,1/16W
R103	NRSA63J-100N	RESISTOR	10Ω,1/16W
R104	NRSA63J-242N	RESISTOR	2.4KΩ,1/16W
R105	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R106	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R107	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R108	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R109	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R110	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R111	NRSA63J-242N	RESISTOR	2.4KΩ,1/16W
R112	NRSA63J-100N	RESISTOR	10Ω,1/16W
R113	NRSA63J-331N	RESISTOR	330Ω,1/16W
R114	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R115	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R116	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R117	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R118	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R119	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R120	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R121	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R122	NRSA63J-391N	RESISTOR	390Ω,1/16W
R123	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R124	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R125	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R126	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R127	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R128	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R129	NRSA63J-681N	RESISTOR	680Ω,1/16W
R130	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R131	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R137	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R138	NRSA63J-123N	RESISTOR	12KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R140	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R141	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R142	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R143	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R144	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R145	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R146	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R147	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R148	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R150	NRD187J-821N	RESISTOR	820Ω,1/8W
R151	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R152	NRD187J-821N	RESISTOR	820Ω,1/8W
R153	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R154	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R155	NRSA63J-471N	RESISTOR	470Ω,1/16W
R156	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R157	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R159	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R160	NRD187J-121N	RESISTOR	120Ω,1/8W
R161	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R162	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R163	NRD187J-121N	RESISTOR	120Ω,1/8W
R165	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R172	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R173	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R174	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R175	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R177	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R178	NRSA63J-101N	RESISTOR	100Ω,1/16W
R179	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R180	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R181	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R182	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R183	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R184	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R185	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R186	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R188	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R190	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R201	NVP1301-103N	V RESISTOR,R CARRIER	10KΩ,1/2W
R202	NVP1301-222N	V RESISTOR,R DEVIATION	2.2KΩ,1/2W
R203	NVP1301-222N	V RESISTOR,L DEVIATION	2.2KΩ,1/2W
R204	NVP1301-103N	V RESISTOR,L CARRIER	10KΩ,1/2W
R205	NVP1201-102N	V RESISTOR,HI-FI PB LEVEL	1KΩ,1/2W
R207	NVP1201-223N	V RESISTOR,S HI-FI REC LEVEL	22KΩ,1/2W
R208	NVP1201-472N	V RESISTOR,N HI-FI REC LEVEL	4.7KΩ,1/2W
C1	NEA31EM-475N	E CAPACITOR	4.7μF,25V
C2	NCB31EK-103A	CAPACITOR	0.01μF,25V
C3	NEH10JM-226N	E CAPACITOR	22μF,6.3V
C4	NCB31EK-103A	CAPACITOR	0.01μF,25V
C5	NCB31EK-103A	CAPACITOR	0.01μF,25V
C6	NCB31EK-103A	CAPACITOR	0.01μF,25V
C7	NCB31EK-103A	CAPACITOR	0.01μF,25V
C8	NEH10JM-226N	E CAPACITOR	22μF,6.3V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C9	NCB31EK-103A	CAPACITOR	0.01μF,25V
C10	NCB31EK-103A	CAPACITOR	0.01μF,25V
C11	NEH10JM-226N	E CAPACITOR	22μF,6.3V
C12	NCB31EK-103A	CAPACITOR	0.01μF,25V
C13	NEA31EM-475N	E CAPACITOR	4.7μF,25V
C14	NCB31EK-103A	CAPACITOR	0.01μF,25V
C101	NEH10JM-226N	E CAPACITOR	22μF,6.3V
C102	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C103	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C104	NCB31EK-103A	CAPACITOR	0.01μF,25V
C105	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C106	YU40688-476N	E CAPACITOR	47μF,5.5V
C107	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C108	NCB31EK-103A	CAPACITOR	0.01μF,25V
C109	QCYA1EK-104	CAPACITOR	0.1μF,25V
C110	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
C111	NEA31CM-106N	E CAPACITOR	10μF,16V
C112	QCYA1EK-104	CAPACITOR	0.1μF,25V
C113	NEH11CM-106N	E CAPACITOR	10μF,16V
C114	NEH11CM-106N	E CAPACITOR	10μF,16V
C115	QCYA1EK-104	CAPACITOR	0.1μF,25V
C116	YU40688-336N	E CAPACITOR	33μF,10V
C117	YU40688-476N	E CAPACITOR	47μF,5.5V
C118	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C119	QCYA1EK-104	CAPACITOR	0.1μF,25V
C120	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
C121	NCB31EK-103A	CAPACITOR	0.01μF,25V
C122	YU40688-476N	E CAPACITOR	47μF,5.5V
C124	NCB31EK-103A	CAPACITOR	0.01μF,25V
C125	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C126	YU40688-476N	E CAPACITOR	47μF,5.5V
C127	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C128	NCB31EK-103A	CAPACITOR	0.01μF,25V
C129	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C130	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C131	NEH10JM-226N	E CAPACITOR	22μF,6.3V
C132	QCYA1EK-104	CAPACITOR	0.1μF,25V
C134	NCB31EK-103A	CAPACITOR	0.01μF,25V
C135	NCB31EK-103A	CAPACITOR	0.01μF,25V
C137	NCB31EK-103A	CAPACITOR	0.01μF,25V
C138	NCB31EK-103A	CAPACITOR	0.01μF,25V
C139	NEE21CM-225R	TANTAL CAPACITOR	2.2μF,16V
C140	YU40688-476N	E CAPACITOR	47μF,5.5V
C141	QCYA1EK-104	CAPACITOR	0.1μF,25V
C142	NCB31EK-103A	CAPACITOR	0.01μF,25V
C143	NCB31EK-103A	CAPACITOR	0.01μF,25V
C144	NCS31HJ-271A	CAPACITOR	270pF,50V
C145	NCB31EK-103A	CAPACITOR	0.01μF,25V
C146	NCB31EK-103A	CAPACITOR	0.01μF,25V
C148	NCB31CK-223A	CAPACITOR	0.022μF,16V
C149	NCB31CK-223A	CAPACITOR	0.022μF,16V
C152	NCB31EK-103A	CAPACITOR	0.01μF,25V
C153	NEE21DM-475R	TANTAL CAPACITOR	4.7μF,20V
C154	NCB31HK-102A	CAPACITOR	0.001μF,50V
C155	NCB31HK-102A	CAPACITOR	0.001μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C156	NEE21DM-475R	TANTAL CAPACITOR	4.7µF,20V
C157	YU40688-336N	E CAPACITOR	33µF,10V
C158	NEE21DM-475R	TANTAL CAPACITOR	4.7µF,20V
C159	YU40688-476N	E CAPACITOR	47µF,5.5V
C160	NCB31HK-102A	CAPACITOR	0.001µF,50V
C161	NCB31HK-102A	CAPACITOR	0.001µF,50V
C162	YU40688-476N	E CAPACITOR	47µF,5.5V
C163	YU40688-336N	E CAPACITOR	33µF,10V
C171	QCYA1EK-104	CAPACITOR	0.1µF,25V
L1	YU41135-470	COIL	47µH
L2	YU41135-470	COIL	47µH
L3	YU41135-470	COIL	47µH
L101	YU41135-470	COIL	47µH
L102	YU41135-470	COIL	47µH
L103	YU41135-470	COIL	47µH
BPF101	YU40933	BAND PASS FILTER	
BPF102	YU40934	BAND PASS FILTER	
SW1	YQ42269	KNOB(S-VHS)	
SW2	YU40111	SLIDE SWITCH	
TP1	YU41389	TEST PIN,VIDEO OUT	
TP2	YU41389	TEST PIN,S COLOR OUT	
TP3	YU41389	TEST PIN,S Y OUT	
TP4	YU41389	TEST PIN,GND	
TP101	YU41389	TEST PIN,L DEMOD IN	
TP102	YU41389	TEST PIN,A PB FM	
TP103	YU41389	TEST PIN,GND	
TP104	YU41389	TEST PIN,A REC FM	
TP105	YU41389	TEST PIN,AUDIO L OUT	
TP106	YU41389	TEST PIN,AUDIO R OUT	
TP107	YU41389	TEST PIN,AUDIO L IN	
TP108	YU41389	TEST PIN,AUDIO R IN	
CN1	YU41359-30	CAP HOUSING,(BOARD TO BOARD)	
CN2	YU41359-26	CAP HOUSING,(BOARD TO BOARD)	
CN3	YU41359-26	CAP HOUSING,(BOARD TO BOARD)	
CN4	YU40095-6	CAP HOUSING	

****

OPERATION BOARD ASSEMBLY <07>

PWBA	YQ30924-1-3	CAMERA OPERATION BOARD

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION

****

END SENSOR BRACKET ASSEMBLY <08>

PWBA	YQ41594B-6	END SENSOR BRACKET ASSY
BKT1	YQ30614-1-4	END SENSOR BRACKET

****

IMAGER BOARD ASSEMBLY <11>

PWBA	YB20408A-04	IMEGER BOARD ASSY	
IC102	CXD1250N	IC	
Q101	2SC4655	TRANSISTOR	
Q102	XP5601	TRANSISTOR	
D101	MA8240	DIODE	
D102	MA8240	DIODE	
D103	MA110	DIODE	
D104	MA110	DIODE	
R102	NRSA63J-101N	RESISTOR	100Ω,1/16W
R103	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R104	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R105	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R106	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R107	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R108	YU41218-104N	V RESISTOR,BLOOMING	
R109	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R110	QRS188J-0R0Y	RESISTOR	0Ω,1/8W
R111	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
C101	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C102	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C103	NEE21EM-106R	TANTAL CAPACITOR	10µF,25V
C104	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C105	QCYA1EK-104	CAPACITOR	0.1µF,25V
C106	NEE21EM-225R	TANTAL CAPACITOR	2.2µF,25V
C107	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C108	NEE21VM-685R	TANTAL CAPACITOR	6.8µF,35V
C109	NEE21EM-225R	TANTAL CAPACITOR	2.2µF,25V
C110	QCF81HZ-104Z	CAPACITOR	0.1µF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C111	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C112	NEE21CM-685R	TANTAL CAPACITOR	6.8μF,16V
C113	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C114	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C115	NCF31CZ-104A	CAPACITOR	0.1μF,16V
L102	YU40740-220K	COIL	22μH
L103	YU40740-220K	COIL	22μH
L104	YU40740-220K	COIL	22μH
CN101	YU41361-16	CAP HOUSING,(BOARD TO BOARD)	
	or PEMC0907-016	CAP HOUSING,(BOARD TO BOARD)	
△ CN102	PEMC0772	CAP HOUSING	
CN103	YU41356-2	CAP HOUSING	

****

SSG BOARD ASSEMBLY <12>

PWBA	YB20465A-01	SSG BOARD ASSY
IC201	MN3821S	IC
IC202	MN3822S	IC
IC203	TA8790F	IC
IC204	TC6060AU	IC
Q201	2SC3936(BC)	TRANSISTOR
Q202	2SA1532(BC)	TRANSISTOR
Q203	2SA1532(BC)	TRANSISTOR
Q204	2SA1532(BC)	TRANSISTOR
Q205	2SC3936(BC)	TRANSISTOR
Q206	2SC3936(BC)	TRANSISTOR
Q207	2SA1532(BC)	TRANSISTOR
Q208	2SC3936(BC)	TRANSISTOR
Q209	2SC3936(BC)	TRANSISTOR
Q210	2SA1532(BC)	TRANSISTOR
Q211	2SA1532(BC)	TRANSISTOR
Q212	2SA1532(BC)	TRANSISTOR
Q213	2SA1532(BC)	TRANSISTOR
Q214	2SC3936(BC)	TRANSISTOR
Q215	2SC3936(BC)	TRANSISTOR
Q216	2SC3936(BC)	TRANSISTOR
Q217	2SA1532(BC)	TRANSISTOR
Q218	2SC3936(BC)	TRANSISTOR
Q219	2SA1532(BC)	TRANSISTOR
D201	MA141WK	DIODE
D202	MA141K	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R202	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R203	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R205	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R206	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R207	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R208	YU41218-103N	V RESISTOR,1H DL SIG LEVEL	10KΩ
R209	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R210	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R211	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R212	YU41218-103N	V RESISTOR,CNR BALANCE	10KΩ
R213	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R214	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R215	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R216	YU41218-103N	V RESISTOR,COLOR DET BAL	10KΩ
R217	NRSA63J-101N	RESISTOR	100Ω,1/16W
R218	NRSA63J-101N	RESISTOR	100Ω,1/16W
R219	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R220	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R221	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R222	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R223	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R224	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R225	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R226	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R228	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R229	NRSA63J-821N	RESISTOR	820Ω,1/16W
R230	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R231	NRSA63J-471N	RESISTOR	470Ω,1/16W
R232	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R233	NRSA63J-471N	RESISTOR	470Ω,1/16W
R234	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R235	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R236	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R237	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R238	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R239	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R247	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R248	YU41218-103N	V RESISTOR,R SEPA	10KΩ
R249	NRVA63D-683N	RESISTOR	68KΩ,1/16W
R250	NRVA63D-243N	RESISTOR	24KΩ,1/16W
R251	NRVA63D-242N	RESISTOR	2.4KΩ,1/16W
R252	NRVA63D-473N	RESISTOR	47KΩ,1/16W
R253	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R257	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R258	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R260	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R261	NRSA63J-561N	RESISTOR	560Ω,1/16W
R264	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R265	NRSA63J-331N	RESISTOR	330Ω,1/16W
R266	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R267	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R268	NRSA63J-101N	RESISTOR	100Ω,1/16W
R269	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R270	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R271	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R272	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R273	YU41607	INDUCTOR	
R274	NRSA63J-181N	RESISTOR	180Ω,1/16W
R275	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R276	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R277	NRSA63J-912N	RESISTOR	9.1KΩ,1/16W
R278	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R280	YU41218-103N	V RESISTOR,AGC LEVEL	10KΩ
R286	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R287	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R288	YU41218-103N	V RESISTOR,B SEPA	10KΩ
R289	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R290	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R291	NRSA63J-753N	RESISTOR	75KΩ,1/16W
R292	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R293	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R301	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R303	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
C201	NEA20JM-226N	E CAPACITOR	22μF,6.3V
C203	NCB31EK-103A	CAPACITOR	0.01μF,25V
C204	NCB31EK-103A	CAPACITOR	0.01μF,25V
C205	QCFA1CZ-105	CAPACITOR	1μF,16V
C206	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C207	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C208	NEA21CM-106N	E CAPACITOR	10μF,16V
C209	NCB31HK-102A	CAPACITOR	0.001μF,50V
C210	QEE81DM-226	TANTAL CAPACITOR	22μF,20V
C211	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C212	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C214	NCB31HK-102A	CAPACITOR	0.001μF,50V
C215	QCFA1CZ-105	CAPACITOR	1μF,16V
C216	QCFA1CZ-105	CAPACITOR	1μF,16V
C217	NCB31EK-103A	CAPACITOR	0.01μF,25V
C220	NEA20JM-107N	E CAPACITOR	100μF,6.3V
C221	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C222	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C223	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C224	NEE21CM-225R	TANTAL CAPACITOR	2.2μF,16V
C225	NEE21EM-225R	TANTAL CAPACITOR	2.2μF,25V
C226	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C227	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C228	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C229	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C230	NEE21AM-335R	TANTAL CAPACITOR	3.3μF,10V
C231	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C232	NCT06CH-331A	CAPACITOR	330pF,50V
C235	NEA20JM-226N	E CAPACITOR	22μF,6.3V
C236	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C237	NEE21AM-336R	TANTAL CAPACITOR	33μF,10V
C238	NCT06CH-2R0A	CAPACITOR	2pF,50V
C239	YU41582-200X	TRIMMER CAPACITOR,OSC	20pF
C240	NCT07CH-8R0A	CAPACITOR	8pF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C241	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C242	NCT06CH-680A	CAPACITOR	68pF,50V
C247	NCT07CH-560A	CAPACITOR	56pF,50V
C248	NCT07CH-560A	CAPACITOR	56pF,50V
C249	NCB31EK-103A	CAPACITOR	0.01μF,25V
C250	QCFA1CZ-105	CAPACITOR	1μF,16V
C251	QEE81EM-105	CAPACITOR	1μF,25V
C253	QEE81AM-476	T CAPACITOR	47μF,10V
C254	QEM70JM-227	TANTAL CAPACITOR	220μF,6.3V
C257	NCT06CH-101A	CAPACITOR	100pF,50V
C258	NCB31HK-102A	CAPACITOR	0.001μF,50V
C259	NCT07CH-270A	CAPACITOR	27pF,50V
L201	YU40740-220K	COIL	22μH
L202	YU40740-220K	COIL	22μH
L203	YU40740-220K	COIL	22μH
L204	YU40740-220K	COIL	22μH
L205	YU40740-220K	COIL	22μH
L206	YU40740-220K	COIL	22μH
L207	YU40740-220K	COIL	22μH
L210	PELN0602-224M	COIL	
L211	PELN0602-224M	COIL	
L213	PELN0602-473M	COIL	
LPF201	PELN0404	LOW PASS FILTER	
LPF202	PELN0481-02	LOW PASS FILTER	
LPF203	PELN0406-02	LOW PASS FILTER	
LPF204	PELN0406-02	LOW PASS FILTER	
LPF205	PELN0549	LOW PASS FILTER	
or	PELN0553	LOW PASS FILTER	
LPF206	PELN0536	LOW PASS FILTER	
LPF207	PELN0536	LOW PASS FILTER	
LPF208	PELN0535	LOW PASS FILTER	
DL209	YU40655	DELAY LINE	
⚠ X201	PEVB0368	CRYSTAL RESONATOR	
TP201	YU40581	TEST PIN,FCK PULS OUT	
CN201	YU41359-16	CAP HOUSING,(BOARD TO BOARD)	
CN202	YU41358-30	CAP HOUSING,(BOARD TO BOARD)	
CN203	YU41361-14	CAP HOUSING,(BOARD TO BOARD)	

– C.V. BOARD ASSEMBLY –

PWBA1	YB20302B	C.V. BORAD ASSY	
R305	YU41218-472N	V RESISTOR,AGC START POINT	

****

VIDEO BOARD ASSEMBLY <13>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YB20473A-01	VIDEO BOARD ASSY
IC301	HA118154MA	IC
IC302	MC8180K	IC
	or PEIC2396-2	IC
IC303	BU2728K	IC
IC304	MS6264CLL-10	IC
	or FCB61C65LL	IC
IC305	JCY0011	IC
IC306	BA7606F	IC
IC307	TC7S04F	IC
IC308	TC7S04F	IC
IC309	LM393DB	IC
Q301	2SA1790	TRANSISTOR
Q302	2SC4655	TRANSISTOR
Q303	2SC4691(QR)	TRANSISTOR
Q307	2SA1790	TRANSISTOR
Q308	2SA1790	TRANSISTOR
Q309	2SC4655	TRANSISTOR
Q310	2SA1790	TRANSISTOR
Q311	2SC4655	TRANSISTOR
Q312	2SA1790	TRANSISTOR
Q313	2SC4655	TRANSISTOR
Q314	2SC4655	TRANSISTOR
Q315	2SC4655	TRANSISTOR
Q316	2SC4655	TRANSISTOR
Q317	2SD2216(QR)	TRANSISTOR
Q318	2SC4655	TRANSISTOR
Q319	2SC4655	TRANSISTOR
Q320	2SC4655	TRANSISTOR
Q321	2SK665	TRANSISTOR
Q322	2SC4655	TRANSISTOR
Q323	2SC4655	TRANSISTOR
Q324	2SC4655	TRANSISTOR
Q325	2SC4655	TRANSISTOR
Q326	2SC4655	TRANSISTOR
Q327	2SC4655	TRANSISTOR
Q328	2SC4655	TRANSISTOR
Q329	2SC4655	TRANSISTOR
Q330	2SC4655	TRANSISTOR
Q331	2SC4655	TRANSISTOR
Q332	2SC4655	TRANSISTOR
Q333	2SA1790	TRANSISTOR
Q334	2SA1790	TRANSISTOR
D301	MA132WA	DIODE
D303	MA132WK	DIODE
D304	MA366	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D305	RB451F	DIODE	
D306	MA8033	ZENER DIODE	
R301	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R302	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R303	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R304	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R305	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R306	NVP1202-103N	V RESISTOR,R ENCODER BAL	10KΩ,1/2W
R307	NVP1202-103N	V RESISTOR,B ENCODER BAL	10KΩ,1/2W
R308	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R309	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R310	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R311	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R315	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R316	NRVA63D-822N	RESISTOR	8.2KΩ,1/16W
R317	NRSA63J-363N	RESISTOR	36KΩ,1/16W
R318	NRSA63J-623N	RESISTOR	62KΩ,1/16W
R319	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R320	NRSA63J-362N	RESISTOR	3.6KΩ,1/16W
R321	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R322	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R324	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R325	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R326	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R327	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R328	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R330	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R331	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R332	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R333	NVP1202-472N	V RESISTOR,B-Y LEVEL	4.7KΩ,1/2W
R334	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R336	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R337	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R338	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R339	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R340	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R341	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R342	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R343	NVP1202-472N	V RESISTOR,Y LEVEL	4.7KΩ,1/2W
R344	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R345	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R348	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R349	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R350	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R351	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R352	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R353	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R354	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R355	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R357	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R358	NVP1202-103N	V RESISTOR,BURST LEVEL	10KΩ,1/2W
R359	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R360	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R361	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R362	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R363	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R364	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R365	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R366	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R367	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R368	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R369	NRSA63J-684N	RESISTOR	680KΩ,1/16W
R370	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R371	NRSA63J-163N	RESISTOR	16KΩ,1/16W
R372	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R373	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R374	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R375	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R376	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R377	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R378	NRSA63J-225N	RESISTOR	2.2MΩ,1/16W
R380	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R381	NVP1202-103N	V RESISTOR,SET UP LEVEL	10KΩ,1/2W
R383	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R384	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R385	NVP1202-473N	V RESISTOR,R GAIN	47KΩ,1/2W
R386	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R387	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R388	NVP1202-473N	V RESISTOR,B GAIN	47KΩ,1/2W
R389	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R390	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R391	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R392	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R393	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R394	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R395	NRVA63D-163N	RESISTOR	16KΩ,1/16W
R396	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R397	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R398	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R399	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R400	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R401	NRSA63J-912N	RESISTOR	9.1KΩ,1/16W
R402	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R403	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R404	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R405	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R406	NRSA63J-561N	RESISTOR	560Ω,1/16W
R407	NRSA63J-203N	RESISTOR	20KΩ,1/16W
R408	NRSA63J-132N	RESISTOR	1.3KΩ,1/16W
R409	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R410	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R411	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R413	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R414	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R415	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R416	NVP1202-103N	V RESISTOR,COLOR LEVEL	10KΩ,1/2W
R417	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R418	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R419	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R420	NRVA63D-392N	RESISTOR	3.9KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R421	NRVA63D-273N	RESISTOR	27KΩ,1/16W
R423	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R424	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R425	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R426	NVP1202-472N	V RESISTOR,BURST LEVEL	4.7KΩ,1/2W
R427	NRSA63J-752N	RESISTOR	7.5KΩ,1/16W
R428	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R429	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R430	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R433	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R434	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R435	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R436	NRSA63J-363N	RESISTOR	36KΩ,1/16W
R437	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R438	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R439	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R440	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R441	NRSA63J-203N	RESISTOR	20KΩ,1/16W
R442	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R443	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R444	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R445	NRVA63D-393N	RESISTOR	39KΩ,1/16W
R446	NRSA63J-203N	RESISTOR	20KΩ,1/16W
R447	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R448	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R449	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R450	NRSA63J-753N	RESISTOR	75KΩ,1/16W
R451	NRSA63J-363N	RESISTOR	36KΩ,1/16W
R452	NRSA63J-224N	RESISTOR	220KΩ,1/16W
R454	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R455	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R456	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R458	NRVA63D-393N	RESISTOR	39KΩ,1/16W
R460	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R461	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R463	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R465	NRSA63J-820N	RESISTOR	82Ω,1/16W
C301	NCB31EK-103A	CAPACITOR	0.01μF,25V
C302	NCT06CH-101A	CAPACITOR	100pF,50V
C303	QCFA1CZ-105	CAPACITOR	1μF,16V
C304	QCFA1CZ-105	CAPACITOR	1μF,16V
C305	QCYA1EK-473	CAPACITOR	0.047μF,25V
C306	NCB31EK-103A	CAPACITOR	0.01μF,25V
C307	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C308	QCYA1EK-473	CAPACITOR	0.047μF,25V
C309	QCYA1EK-473	CAPACITOR	0.047μF,25V
C310	QCYA1EK-473	CAPACITOR	0.047μF,25V
C311	QCYA1EK-473	CAPACITOR	0.047μF,25V
C312	QCYA1EK-473	CAPACITOR	0.047μF,25V
C313	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C314	QCYA1EK-473	CAPACITOR	0.047μF,25V
C315	QCYA1EK-473	CAPACITOR	0.047μF,25V
C316	QCYA1EK-473	CAPACITOR	0.047μF,25V
C317	QCYA1EK-473	CAPACITOR	0.047μF,25V
C318	QCYA1EK-104	CAPACITOR	0.1μF,25V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C319	NCB31EK-103A	CAPACITOR	0.01μF,25V
C320	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C321	NCB31EK-103A	CAPACITOR	0.01μF,25V
C322	NCB31EK-103A	CAPACITOR	0.01μF,25V
C325	QCYA1EK-473	CAPACITOR	0.047μF,25V
C326	QCYA1EK-473	CAPACITOR	0.047μF,25V
C327	NCT06CH-101A	CAPACITOR	100pF,50V
C328	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C329	NCT06CH-101A	CAPACITOR	100pF,50V
C330	NCT06CH-101A	CAPACITOR	100pF,50V
C331	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C332	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C333	QCYA1EK-473	CAPACITOR	0.047μF,25V
C335	NCT06CH-101A	CAPACITOR	100pF,50V
C336	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C337	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C338	QCYA1EK-473	CAPACITOR	0.047μF,25V
C339	QCYA1EK-473	CAPACITOR	0.047μF,25V
C340	NCT06CH-330A	CAPACITOR	33pF,50V
C341	NCB31EK-103A	CAPACITOR	0.01μF,25V
C342	NCB31EK-103A	CAPACITOR	0.01μF,25V
C343	NCT06CH-101A	CAPACITOR	100pF,50V
C347	YU41582-300	TRIMMER CAPACITOR,TITLE POSITION	30pF
C348	NCT06CH-4R0A	CAPACITOR	4pF,50V
C349	NCT06CH-3R0A	CAPACITOR	3pF,50V
C351	NCT06CH-680A	CAPACITOR	68pF,50V
C352	NCT06CH-270A	CAPACITOR	27pF,50V
C354	QCYA1EK-473	CAPACITOR	0.047μF,25V
C355	QCYA1EK-473	CAPACITOR	0.047μF,25V
C356	QCYA1EK-473	CAPACITOR	0.047μF,25V
C359	NCB31EK-103A	CAPACITOR	0.01μF,25V
C360	NCB31EK-103A	CAPACITOR	0.01μF,25V
C361	NCB31EK-103A	CAPACITOR	0.01μF,25V
C362	NCB31EK-103A	CAPACITOR	0.01μF,25V
C363	NCB31EK-103A	CAPACITOR	0.01μF,25V
C364	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C365	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C366	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C367	NCB31EK-103A	CAPACITOR	0.01μF,25V
C368	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C369	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C370	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C371	NCB31EK-103A	CAPACITOR	0.01μF,25V
C372	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C374	NCB31EK-103A	CAPACITOR	0.01μF,25V
C401	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C402	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C403	QER40JM-107	E CAPACITOR	100μF,6.3V
C404	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C405	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C406	NEE21CM-105R	TANTAL CAPACITOR	1μF,16V
C407	NEE20GM-335R	TANTAL CAPACITOR	3.3μF,4.0V
C409	NEE21AM-106R	TANTAL CAPACITOR	10μF,10V
C410	NCB31EK-103A	CAPACITOR	0.01μF,25V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
L301	YU41607	INDUCTOR	
L302	PU58385-120K	COIL	12μH
L304	YU40740-220K	COIL	22μH
L305	YU40740-220K	COIL	22μH
L306	YU40740-220K	COIL	22μH
L307	YU40740-220K	COIL	22μH
L308	PU58385-120K	COIL	12μH
L309	PU58385-120K	COIL	12μH
BPF301	YU41708	DELAY LINE	
DL301	YU41628	CHIP DL	
DL302	PELN0425	LOW PASS FILTER	
	or PELN0552	LOW PASS FILTER	
SLD1	YU41927	INSULATER	
SPC1	YQM30029-95	SPACER	
SPC2	YQM30029-74	SPACER	
SPC3	YQM30029-100	SPACER	
SPC4	YQM30029-101	SPACER	
TP301	YU41389	TEST PIN,CNR	
TP302	YU41389	TEST PIN,B IN	
TP303	YU41389	TEST PIN,YH IN	
TP304	YU41389	TEST PIN,R-Y	
TP305	YU41389	TEST PIN,B-Y	
TP306	YU41389	TEST PIN,FD OUT	
TP307	YU41389	TEST PIN,V EDGE	
TP308	YU41389	TEST PIN,Y OUT	
TP309	YU41389	TEST PIN,COLOR OUT	
TP310	YU41389	TEST PIN,C OH	
TP311	YU41389	TEST PIN,HG 1	
TP312	YU41389	TEST PIN,R IN	
CN301	YU41359-30	CAP HOUSING,(BOARD TO BOARD)	
CN302	YU41359-30	CAP HOUSING,(BOARD TO BOARD)	
CN303	YU41359-8	CAP HOUSING,(BOARD TO BOARD)	
CN304	YU41361-12	CAP HOUSING,(BOARD TO BOARD)	

– Y G UP BOARD ASSEMBLY –

PWBA1	YB20486A	Y G UP BOARD ASSY	
IC1	TC4S66F	IC	
Q1	2SC3936(BC)	TRANSISTOR	
Q2	2SC3936(BC)	TRANSISTOR	
R1	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R2	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R3	NRSA63J-302N	RESISTOR	3KΩ,1/16W
R4	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R5	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W

****

AF BOARD ASSEMBLY <15>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	YB20342M-07	AF BOARD ASSY	
	IC1	MN12821(QR)	IC	
	IC2	HA13489MP	IC	
	IC3	MN18888JFQS-2	IC	
	IC4	JCY0007-1	IC	
	IC5	MM1036XF	IC	
	IC6	LM358DB	IC	
	IC7	M5236ML	IC	
	IC11	LM324DB	IC	
	Q1	2SB1132(QR)	TRANSISTOR	
	Q2	DTA114EU	TRANSISTOR	
	Q3	XP5601	TRANSISTOR	
	Q5	XP2501	TRANSISTOR	
	Q6	DTC114EU	TRANSISTOR	
	Q11	2SB1218(QR)	TRANSISTOR	
	Q12	2SD1819(QR)	TRANSISTOR	
		or 2SD1819A(QR)	TRANSISTOR	
	D11	MA141WK	DIODE	
	D12	MA28WA	DIODE	
	R1	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R3	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R5	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R6	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R7	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R8	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R9	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R10	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R11	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R12	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R13	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R15	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R16	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
	R17	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R18	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	R19	NRSA63J-683N	RESISTOR	68KΩ,1/16W
	R20	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R21	NRSA63J-563N	RESISTOR	56KΩ,1/16W
	R22	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R24	NVP1202-222N	V RESISTOR,OFF SET	2.2KΩ,1/2W
	R27	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R28	NVP1202-334N	V RESISTOR,GAIN	330KΩ,1/2W
	R29	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R30	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R31	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R32	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R33	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R35	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R36	NRSA63J-681N	RESISTOR	680Ω,1/16W
	R37	NRSA63J-331N	RESISTOR	330Ω,1/16W
	R39	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R40	NRSA63J-361N	RESISTOR	360Ω,1/16W
	R41	NRSA63J-331N	RESISTOR	330Ω,1/16W
	R43	NRSA63J-681N	RESISTOR	680Ω,1/16W
	R44	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R45	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R46	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R47	NRSA63J-683N	RESISTOR	68KΩ,1/16W
	R48	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R49	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R50	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R51	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R52	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R53	NRSA63J-273N	RESISTOR	27KΩ,1/16W
	R54	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R55	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R56	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R57	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R58	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R59	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R60	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R61	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R62	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R63	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R64	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R65	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R66	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R67	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R68	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	R69	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R71	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	R72	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R73	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R75	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R76	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R77	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R78	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R79	NRSA63J-203N	RESISTOR	20KΩ,1/16W
	R80	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R81	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R86	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R87	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R89	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R90	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R91	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R92	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R93	NRSA63J-153N	RESISTOR	15KΩ,1/16W
	R94	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R95	NRSA63J-221N	RESISTOR	220Ω,1/16W
	R96	NRSA63J-0R0N	RESISTOR	0Ω,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R97	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R99	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R101	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R102	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R103	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R104	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R105	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R106	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R107	NVP1202-222N	V RESISTOR,EE LEVEL	2.2KΩ,1/2W
R108	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R109	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R110	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R111	NRSA63J-561N	RESISTOR	560Ω,1/16W
R112	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R113	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R114	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R115	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R116	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R117	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R118	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R119	NRSA63J-181N	RESISTOR	180Ω,1/16W
R120	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R130	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
C1	NEH30JM-226N	E CAPACITOR	22µF,6.3V
C2	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C3	NCB31CK-273A	CAPACITOR	0.027µF,16V
C4	NEH30JM-226N	E CAPACITOR	22µF,6.3V
C5	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C6	NCR21CK-473A	CAPACITOR	0.047µF,16V
C7	NCR21CK-473A	CAPACITOR	0.047µF,16V
C8	NEE20GM-475R	TANTAL CAPACITOR	4.7µF,4.0V
C9	NCR21CK-473A	CAPACITOR	0.047µF,16V
C10	NCT07CH-101A	CAPACITOR	100pF,50V
C11	NCR31CK-223A	CAPACITOR	0.022µF,16V
C12	NCR21CK-473A	CAPACITOR	0.047µF,16V
C13	NCR31CK-223A	CAPACITOR	0.022µF,16V
C14	NCR21CK-473A	CAPACITOR	0.047µF,16V
C15	NCR31CK-223A	CAPACITOR	0.022µF,16V
C16	NCR21CK-473A	CAPACITOR	0.047µF,16V
C17	NCT07CH-101A	CAPACITOR	100pF,50V
C18	QCYA1HK-273	CAPACITOR	0.027µF,50V
C19	NCT07CH-101A	CAPACITOR	100pF,50V
C20	QCYA1HK-273	CAPACITOR	0.027µF,50V
C21	QCYA1HK-273	CAPACITOR	0.027µF,50V
C22	QCYA1HK-103	CAPACITOR	0.01µF,50V
C23	NCT07CH-121A	CAPACITOR	120pF,50V
C24	NCT07CH-151A	CAPACITOR	150pF,50V
C25	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C26	NCT07CH-220A	CAPACITOR	22pF,50V
C27	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C28	NCT07CH-390A	CAPACITOR	39pF,50V
C29	NCT07CH-330A	CAPACITOR	33pF,50V
C30	NCB31EK-103A	CAPACITOR	0.01µF,25V
C31	NCT07CH-121A	CAPACITOR	120pF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C32	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C33	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C34	NCT07CH-151A	CAPACITOR	150pF,50V
C35	NCT07CH-151A	CAPACITOR	150pF,50V
C36	NCT07CH-151A	CAPACITOR	150pF,50V
C37	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C40	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C41	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C43	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C44	QED41AM-826	E CAPACITOR	82µF,10V
C45	NEE21AM-106RY	TANTAL CAPACITOR	10µF,10V
C46	NEE21CM-105RY	TANTAL CAPACITOR	1µF,16V
C47	NCB31EK-103A	CAPACITOR	0.01µF,25V
C48	NCB31EK-103A	CAPACITOR	0.01µF,25V
C50	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C51	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C52	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C53	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C54	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C55	NCB31EK-103A	CAPACITOR	0.01µF,25V
C77	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C78	QCFA1CZ-105	CAPACITOR	1µF,16V
C79	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C80	NCF31CZ-104A	CAPACITOR	0.1µF,16V
L1	YU40740-470K	COIL	47µH
L2	YU40740-330K	COIL	33µH
L3	YU40740-470K	COIL	47µH
L4	PU58201-330K	COIL	33µH
L5	PU58201-121K	COIL	120µH
BPF1	YU41493-2	BAND PASS FILTER	
BPF2	YU41555-2	BAND PASS FILTER	
△ X1	PEVB0362	RESONATOR	
△	or PEVB0378-02	RESONATOR	
SPC1	YQM30029-105	SPACER	
SPC2	YQM30029-99	SPACER	
TP1	YU40581	TEST PIN,HALL AMP OUT	
CN51	YU41359-16	CAP HOUSING,(BOARD TO BOARD)	
CN52	YU41359-6	CAP HOUSING,(BOARD TO BOARD)	
CN53	YU41356-4	CAP HOUSING	
CN54	YU41356-4	CAP HOUSING	
CN55	YU41356-3	CAP HOUSING	
CN56	YU41356-2	CAP HOUSING	
CN57	YU41356-3	CAP HOUSING	
CN58	YU41356-4	CAP HOUSING	
CN59	YU41356-4	CAP HOUSING	
CN60	YU41356-4	CAP HOUSING	
△ CP1	ICP-F10	CIRCUIT PROTECTOR	

****

CPU BOARD ASSEMBLY <16>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	YB20411D-03	CPU BOARD ASSY	
	IC1	M37120M6-113FP	IC	
	IC2	CAT93C46K	IC	
	IC3	S-8054HN-CB	IC	
	IC4	S-8052ANB-NE	IC	
	IC5	AN1393S	IC	
	IC6	TC7S04F	IC	
	IC7	S-81250HG-RD	IC	
	IC8	TC4S584F	IC	
	IC9	TC7S32F	IC	
	IC10	TC7S32F	IC	
	Q1	DTC124EU	TRANSISTOR	
	D1	MA704WK	DIODE	
⚠	D3	MA704	DIODE	
⚠	D4	MA704	DIODE	
	D5	RD7.5M(B2)	ZENER DIODE	
	D7	RD7.5M(B2)	ZENER DIODE	
	D8	RD7.5M(B2)	ZENER DIODE	
	R2	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R4	NRSA63J-100N	RESISTOR	10Ω,1/16W
	R5	NRSA63J-100N	RESISTOR	10Ω,1/16W
	R6	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
	R7	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R8	NRSA63J-103N	RESISTOR	10KΩ,1/16W
⚠	R12	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R13	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R14	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R15	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R16	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R17	NRSA63J-221N	RESISTOR	220Ω,1/16W
	R18	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R19	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R20	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R21	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R22	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R23	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R24	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R25	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R26	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R27	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R28	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R29	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R30	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R31	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R32	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R33	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R34	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	R35	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R36	NRSA63J-125N	RESISTOR	1.2MΩ,1/16W
	R37	NRSA63J-125N	RESISTOR	1.2MΩ,1/16W
	R38	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R39	NRSA63J-564N	RESISTOR	560KΩ,1/16W
	R40	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R41	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R42	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R43	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R44	NRSA63J-100N	RESISTOR	10Ω,1/16W
	R45	NRSA63J-100N	RESISTOR	10Ω,1/16W
	R46	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R47	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R48	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R49	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R50	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R53	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R54	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R55	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R56	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R57	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R58	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R59	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R60	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R61	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R62	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R65	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R66	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R67	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R68	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R69	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R70	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R72	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R73	NRSA63J-100N	RESISTOR	10Ω,1/16W
	R74	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R75	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R76	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R77	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
	C1	NEA20JM-226N	E CAPACITOR	22μF,6.3V
	C2	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C3	NEA20JM-226N	E CAPACITOR	22μF,6.3V
	C4	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C5	QCFA1CZ-105	CAPACITOR	1μF,16V
	C6	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C7	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C8	NCT07CH-300A	CAPACITOR	30pF,50V
	C10	PU56274-200	TRIMMER CAPACITOR,IND POSITION	20pF
		or PECA0779-200X	TRIMMER CAPACITOR	
	C11	NCT07CH-220A	CAPACITOR	22pF,50V
	C12	NCT07CH-220A	CAPACITOR	22pF,50V
	C15	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C16	NEA20JM-226N	E CAPACITOR	22μF,6.3V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C17	NEA20JM-226N	E CAPACITOR	22μF,6.3V
	C18	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C19	NCB31EK-103A	CAPACITOR	0.01μF,25V
	L1	YU40740-220K	COIL	22μH
	L3	YU40740-390K	COIL	39μH
⚠	X1	YU40141	CRYSTAL RESONATOR	
⚠	X2	PEVB0363	RESONATOR	
	SLD1	YU40341	INSULATER	
	WR1	ML-Y00599A	CPU PWB WIRE,FOR CN15	
	CN11	YU41361-16	CAP HOUSING,(BOARD TO BOARD)	
		or PEMC0907-016	CAP HOUSING,(BOARD TO BOARD)	
	CN12	YU41361-30	CAP HOUSING,(BOARD TO BOARD)	
	CN13	YU41359-14	CAP HOUSING,(BOARD TO BOARD)	
	CN14	YU41361-16	CAP HOUSING,(BOARD TO BOARD)	
		or PEMC0907-016	CAP HOUSING,(BOARD TO BOARD)	
	CN15	YU41356-7	CAP HOUSING,(BOARD TO BOARD)	
	CN16	YU41356-9	CAP HOUSING,(BOARD TO BOARD)	

****

JUNCTION BOARD ASSEMBLY <17>

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YB20489A-01	JUNCTION BOARD ASSY
CN1	PU58655-2	CAP HOUSING
CN2	PEMC0793-9	CAP HOUSING
CN3	YU41355-8	CAP HOUSING

****

DISPLAY BOARD ASSEMBLY <18>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	YB20575A	DISPLAY BOARD ASSY	
	R1	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R2	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	L1	PELN0563	FERRITE RING	
	L2	YU41607	INDUCTOR	
	L3	YU41607	INDUCTOR	
	L4	YU41607	INDUCTOR	
	SW1	YU41702	SLIDE SWITCH,LONG/NORMAL	
	SW2	YU41703	TACT SWITCH,D/T SELECT	
	SW3	YU41703	TACT SWITCH,D/T SET(+)	
	SW4	YU41703	TACT SWITCH,D/T SET(−)	
	CN1	PEMC0793-9	CAP HOUSING	
	CN2	PU58655-2	CAP HOUSING	

****

TALLY BOARD ASSEMBLY <19>

REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20478A-04	TALLY BOARD ASSY	
Q1	DTA144EU	TRANSISTOR	
Q2	DTC124EU	TRANSISTOR	
D1	SLH-34VC3F	LE DIODE	
D2	SPS-421-1	DIODE,IR DETECT UNIT	
R1	NRSA63J-470N	RESISTOR	47Ω,1/16W
C1	QER40JM-476	E CAPACITOR	47μF,6.3V
HD1	PQ40795-4-2	LED HOLDER	
SPC1	YQM30029-85	SPACER	
CN2	ML-Y00601B	TALY PWB WIRE2	

****

DRUM BOARD <40>

REF No.	PART No.	PART NAME, DESCRIPTION
PWB	YDM3050-1-6	BOARD (UPPER DRUM)

#△	REF No.	PART No.	PART NAME, DESCRIPTION	

****

E.VF BOARD ASSEMBLY <50>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	YU30531-136	E.VF BOARD ASSY	
△	IC1	AN2514S	IC	
△	IC2	YU30407-159	IC	
	Q1	2SC2812	TRANSISTOR,TR1	
		or 2SD601A	TRANSISTOR,TR1	
		or 2SC2412K	TRANSISTOR,TR1	
△	Q2	2SC4132	TRANSISTOR,TR2	
△		or 2SD1615A	TRANSISTOR,TR2	
	D01	DCB010	DIODE	
		or MA151WK	DIODE	
		or DAN202K	DIODE	
	D02	MA152WK	DIODE	
	D03	YU30407-161	DIODE	
	D04	MA157A	DIODE	
	D05	ERA22-08	ZENER DIODE	
	D06	YU30531-141	ZENER DIODE	
	R01	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R02	QRSA08J-3R9YN	RESISTOR	3.9Ω,1/10W
	R03	QRSA08J-181YN	RESISTOR	180Ω,1/10W
	R04	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R05	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R06	QRSA08J-242YN	RESISTOR	2.4KΩ,1/10W
	R07	QRSA08J-220YN	RESISTOR	22Ω,1/10W
	R09	QRSA08J-113YN	RESISTOR	11KΩ,1/10W
	R10	QRSA08J-912YN	RESISTOR	9.1KΩ,1/10W
	R11	QRSA08J-512YN	RESISTOR	5.1KΩ,1/10W
	R12	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R13	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R14	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R15	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R16	QRSA08J-110YN	RESISTOR	11Ω,1/10W
	R17	QRS188J-335YN	RESISTOR	3.3MΩ,1/8W
	R18	QRS188J-335YN	RESISTOR	3.3MΩ,1/8W
	R19	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R20	QRSA08J-683YN	RESISTOR	68KΩ,1/10W
	R21	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R22	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R23	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R40	QRSA08J-154YN	RESISTOR	150KΩ,1/10W
	VR1	YU30315-201	V RESISTOR,V.SIZE	
	VR2	YU30315-203	V RESISTOR,H.HOLD	
	VR3	YU30407-152	V RESISTOR,BRIGHT	

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	VR4	YU30407-153	V RESISTOR,FOCUS	
	C01	YU30181-506	TANTAL CAPACITOR	50μF,16V
	C02	QER41HM-105	E CAPACITOR	1μF,50V
	C03	QCYA1HK-223	CAPACITOR	0.022μF,50V
	C04	YQ30723-302	TANTAL CAPACITOR	33μF,10V
	C05	YQ30723-304	CAPACITOR	0.1μF
	C06	QCF81CZ-105	CAPACITOR	1μF,16V
	C07	QEF42AJ-242	CAPACITOR	0.0024μF,100V
	C09	YU30531-162	E CAPACITOR	100F,10V
	C10	YQ30723-304	CAPACITOR	10μF,16V
	C11	QER41HM-475	E CAPACITOR	4.7μF,50V
	C12	QEK41HM-335	E CAPACITOR	3.3μF,50V
	C13	QCTA1CH-181	CAPACITOR	180pF,16V
	C14	YU30531-163	CAPACITOR	0.016μF
	C15	QCYA1HK-472	CAPACITOR	0.0047μF,50V
	C16	QEJ40JM-686	TANTAL CAPACITOR	68μF,6.3V
	C17	QER41CM-106	E CAPACITOR	10μF,16V
	C18	YU30531-161	CAPACITOR	160pF
	L01	YU30315-207	INDUCTOR COIL	
	L03	YU30531-142	H.L.COIL,HLC	
	TH1	YQ30723-117	THERMISTOR,TH	
△	T1	YU30531-143	FLY BACK TRANS,FBT	
	WR1	YU30531-144	WIRE(PIN 7)	
	WR2	YU30531-145	CRT CONNECTOR ASSY	
	CN1	YU30236-115	CAP HOUSING	
	CN2	YU40095-5	CAP HOUSING	
△	CP1	YU30407-157	CIRCUIT PROTECTOR	

– E.VF(TRIGGER) BOARD ASSEMBLY –

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA1	*	TRIGGER BOARD ASSY
	SW01	YU30531-146	SWITCH
	CN3	YU40096-2	CAP HOUSING

SECTION 8
TECHNICAL INFORMATIONS

8.1 MECHACON CPU ($\boxed{0}\boxed{1}$ VTR IC 301) Pin function

Pin No.	Symbol	Label	IN/OUT	Contents
1	A0	KEY SW–A	IN	OPERATION SW
2	P77	H PB(L)	OUT	HiFi PB(L)/EE(H)
3	P76	A BIAS	OUT	AUDIO REC BIAS ON(H)
4	P75	A MUTE	OUT	AUDIO OUT MUTE(H)
5	P74	A PB(L)	OUT	AUDIO PB(L)/EE(H)
6	–	–	IN	Not used
7	P72	S SCLK	OUT	SERVO SERIAL CLOCK
8	P71	S DATA	OUT	SERVO SERIAL DATA
9	P70	H REC MUTE(L)	OUT	HiFi REC MUTE(L)
10	–	–	IN	Not used
11	DA1	CAP M REF	OUT	FF, REW REEL DRIVE VOLTAGE OUTPUT
12	CN TR1	SUP SENS	IN	SUPPLY REEL ROTATION and TAPE REMAIN DETECT
13	CN TR0	CAP FG	IN	FOR TAPE REMAIN and PB SP/EP DETECT
14	I4	MODE D	IN	REC START/STOP TIMING DETECT
15	I3	PB CTL P	IN	PB SP/EP DETECT
16	I2	REC SAFE SW(L)	IN	ON(L)/OFF(H)
17	P50	SYNC CHANGE	OUT	CAMERA ON(H) FOR OSD
18	P47	C SRDY	IN	CAMERA SERIAL READY(L)
19	SCLK	C SCLK	OUT	CAMERA SERIAL DATA TRANSFER CLOCK
20	TX	C DATA2	OUT	SERIAL DATA TRANSMISSION TO CAMERA
21	RXD	C DATA1	IN	SERIAL DATA FROM CAMERA
22	I1	DRUM FF	IN	DRUM ROTATION DETECT
23	I0	REMOTE	IN	POWER, EJECT, REC SAFE SW and REMOTE CTL DETECT
24	CNVss	GND	–	
25	RST	RESET(L)	IN	POWER ON RESET(L)
26	P41	END LED	OUT	END LED ON(H)
27	P40	POW LED	OUT	POWER LED ON(H)
28	XI	X IN	IN	} CPU CLOCK
29	XO	X OUT	OUT	
30	Vss	GND	–	
31	P27	V EE(L)	OUT	VIDEO EE(L)/PB(H)
32	P26	V ALL MUTE	OUT	VIDEO ALL MUTE(H)
33	P25	V PB	OUT	VIDEO PB(H)/EE(L)
34	P24	V REC(L)	OUT	VIDEO REC(L)/PB(H)
35	P23	LD REV	OUT	MODE CTL MOTOR REV(H)
36	P22	LD FWD	OUT	MODE CTL MOTOR FWD(H)
37	P21	TRIG OUT	OUT	REMOTE PAUSE(H)
38	P20	DECK POW CTL	OUT	POWER ON(H)
39	–	–	IN	Not used
40	–	–	IN	Not used
41	P15	H A MUTE	IN	HiFi AUDIO OUT MUTE
42	P14	TRK +	IN	TRACKING UP
43	P13	TRK –	IN	TRACKING DOWN } MANUAL
44	P12	CAM SW–A	IN	} MECHANISM MODE DETECT
45	P11	CAM SW–B	IN	
46	P10	CAS SW	IN	HOUSING LOCK(L)
47	P07	TEST 1	IN	} (H, H)NORMAL
48	P06	TEST 0	IN	(L, L)NO EMERGENCY CHECK
49	–	–	IN	Not used
50	P04	S VHS	IN	S VHS(H)/VHS(L)
51	P03	A OUSEL	IN	NORMAL(L)/HiFi & MIX(H)
52	P02	H DET(L)	IN	HiFi REC(L)/Non HiFi REC(H)
53	P01	S ENBL	IN	Not used

Pin No.	Symbol	Label	IN/OUT	Contents
54	P00	S LOCK(L)	IN	DRUM MOTOR LOCK DETECT
55	P37	V LP SPE(L)	OUT	VIDEO LP SPECIAL(L)
56	P36	V REC MUTE(L)	OUT	VIDEO REC MUTE(L)
57	P35	S ENV	OUT	CLOG CHECK(H)
58	P34	A FM(L)	OUT	A FM(L)/V FM(H)
59	P33	FEH ON	OUT	FLYING ERASE HEAD ON(H)
60	P32	V SW OFF	OUT	VIDEO HEAD SW OFF(H)
61	P31	CTL ERS	OUT	CTL ERASE HEAD ON(H)
62	P30	ALM ON	OUT	TRIGGER ALARM ON(H)
63	P87	LP MOD(L)	IN	Not used
64	P86	PAL(L)	IN	PAL(L)/NTSC(H)
65	P85	A SW B	IN	REC START/STOP TIMING DETECT
66	P84	A FF	IN	AUDIO HEAD SWING PLUSE
67	P83	TU SENS	IN	TU REEL ROTATION DETECT
68	P82	POWER SW(L)	IN	ON(L)/OFF(H)
69	P81	EJECT SW(L)	IN	ON(L)/OFF(H)
70	P80	TRIG SW(L)	IN	TRIGGER SW ON(L)/OFF(H)
71	Vcc	Vcc	IN	AL5V
72	Vref	VREF	IN	REG5V
73	AVss	GND	–	
74	A7	TAPE SELECT	IN	NORMAL(L)/LONG LEGTH(H)
75	A6	EMG REQ	IN	H:REG SHORT → POWER OFF
76	P65	BATT CHK	IN	5.55V > ALARM, 5.40V > POWER OFF
77	A4	DEW SENSE	IN	FOR DEW DETECT
78	A3	AVG FM	IN	FOR DIGITAL TRACKING and CLOG CHECK
79	A2	KEY SW–B	IN	OPERATION SW DETECT
80	A1	END SENSE	IN	TAPE END

8.2 Automatic operation of mechacon

1. Tape end detection
   When the end sensor is turned on as the capstan motor is rotating in the FF direction, the mechanism is shifted to the Unloading Stop mode.
   In the FF mode, tape end is detected by the reel sensor.
2. Tape start detection
   When REEL FG signal does not vary for more than 2 sec as the capstan motor is rotating in the REW direction, the mechanism is shifted to the Loading Stop mode.
   In the REW mode, this operation shifts the mechanism to the Unloading Stop mode.
3. Drum rotation detection
   When DRUM FF signal does not vary for more than 2 sec in a mode that the drum must be rotating, the mechanism is shifted to the Unloading Stop mode and the related emergency number is displayed in the electronic viewfinder.
4. Reel rotation detection
   When REEL FG signal does not vary for a time longer than that described below in a mode that the reel must be rotating, the mechanism is shifted to the Unloading Stop mode and the related emergency number is displayed in the electronic viewfinder.

	Supply Reel FG	Take-up Reel FG
REC/PB	10.0 sec	4.2 sec
Preroll	4.2 sec	10.0 sec
Search FF	2.0 sec	2.0 sec

5. Capstan rotation detection
   When no output of CAPSTAN FG signal is obtained in the Assembly Edit mode, the mechanism is shifted to the Unloading Stop mode and the related emergency number is displayed in the electronic viewfinder.
6. Control pulse detection
   When no output of control pulse signal is obtained in recording of VISS code with an optional remote control unit, the mechanism is shifted to the Unloading Stop mode and the related emergency number is displayed in the electronic viewfinder.
7. Loading/Unloading overtime
   If loading operation does not finish with 10 sec after the Loading/Unloading operation started, the operation is stopped and the related emergency number is displayed in the electronic viewfinder.
8. Power-saving
   - When the machine is left in the Stop mode approximately for more than 5 minutes, the power is automatically turned off except in the Rehearsal mode.
   - When the machine is left in the PB Pause mode approximately for more than 5 minutes, the mechanism is shifted to the Stop mode and the power is turned off another 5 minutes after.
   - When the machine is left in the REC Pause mode approximately for more than 5 minutes, the mechanism is shifted to the REC Lock mode and then the power is turned off.

8.3 EMERGENCY DISPLAY

Whenever some abnoral signal is supplied to mechacon CPU, the POWER LED will be flickered and an error number (E05, for example) displayed on the electronic view finder.

E. VF DISPLAY	Symptom	Mode when observed	Resulting mode
E 06	CAPSTAN FG input absent	EDIT	STOP
E 05	PB CTL PULSE input absent	EDIT	STOP
E 04	DRUM FF input absent	DRUM rotation	STOP
E 03	REEL FG input absent	REC, PLAY, SEARCH FF	STOP
E 02	Mode control motor rotates for more than 10 sec. without shift to next mode.	UNLOADING	Mode continues
E 01	Mode control motor rotates for more than 10 sec. without shift to next mode.	LOADING	Mode continues

Emergency mode : Indication for 5 minutes, then power OFF
Port states : Same as Stop mode
Effective key : POWER
Shifted mode : Power OFF

8.4 SERVO LSI ($\boxed{0}\boxed{1}$ VTR IC101) Pin function

Pin No.	Label	I/O	Description	Pin No.	Label	I/O	Description
1	ADV	O	Tracking correction pulse output	29	VDD	–	System power source
2	CAP CTL	O	Control mode switching (CPU/SERVO mode)	30	M-D	O	Drum phase monitor output
3	SB	O	Mode switching (SP mode) signal output	31	M-C	O	Capstan phase monitor output
4	FM EMV	I	Internal sync signal switching (sync/non-sync)	32	SEL 2	I	Setup terminal (Head setting)
5	CPU	O	Capstan phase control PWM output	33	SEL 1	I	(Same as above)
6	CFV	O	Capstan speed control PWM output	34	NC	–	NC
7	BRK	O	Capstan brake control	35	NC	–	NC
8	FWD	O	Normal/Reverse rotation of capstan	36	NC	–	NC
9	WIDE	O	CTL pulse rewrite control signal	37	NC	–	NC
10	WRITE	O	(Same as above)	38	NC	–	NC
11	DUTY	O	REC control duty control	39	D ON	O	Drum on input
12	TEST	O	TEST terminal (NC)	40	SW MM	I/O	PG MM terminal
13	FOSC	O	Reference signal input	41	D FG/PG	I	Drum PG/FG input
14	GND	–	GND	42	GND	–	GND
15	YNR	O	YNR pulse output	43	DPV	O	Drum phase control PWM output
16	VP ON	O	V pulse on/off mode control	44	DFV	O	Drum speed control PWM output
17	VP	O	V sync (false pulse) output	45	GD	O	NC
18	SYNC	I	V sync input	46	ASWD	O	Audio head switching pulse output (A SW D)
19	FRAME	I	Frame pulse input	47	ASWC	O	" (A SW C)
20	AV REC	I	Camera/External input mode switching	48	ASWB	O	" (A SW B)
21	S OUT	O	Servo lock control	49	ASWA	O	" (A SW A)
22	C FG	I	Capstan FG input	50	A FF	O	" (A FF)
23	CTL P	I	Control pulse input	51	VSWD	O	Video head switching pulse output (R SW D)
24	D FF	O	Drum flipflop	52	VSWC	O	" (V SW C)
25	S CLK	I	Serial data input	53	VSWB	O	" (V SW B)
26	S DATA	I	Data transfer clock input	54	VSWA	O	" (V SW A)
27	EP DL	–	NC	55	H FF	O	" (H FF)
28	PW ON	I	Reset terminal	56	V FF	O	" (V FF)

Special functions of servo IC

1. To fix DRUM PHASE OUT (pin 43)
   - When DRUM FG frequency comes off the tolerance of ±10%.
2. To fix CAPSTAN PHASE OUT (pin 5)
   - When DRUM FG frequency comes off the tolerance of ±10%.
   - When CAPSTAN FG frequency comes off the tolerance of ±10%.
   - When 2 or more PB CTL pulses drop out in playback.
   - In the Pause mode
3. DRUM POWER UP (pin 34)
   - To output High potential when DRUM FG frequency is −17% of or lower than the specified value.
   - To output Low potential when DRUM FG frequency is −12% of or higher than the specified value.
4. CAPSTAN POWER UP (pin 35)
   - To output High potential when CAPSTAN FG frequency is −10% of or lower than the specified value.
   - To output Low potential when DRUM FG frequency is −7% of or higher than the specified value.
   - To output High potential in the Search or Retake-REV mode.
   - To output Low potential in the Pause mode.
5. SERVO LOCK OUT (pin 21)
   - To output Low potential when sampling both of the DRUM and CAPSTAN phases are performed for 4 frames in the slope period.
6. MONITOR OUT (pins 30, 31)
   - To output sampling pulses of the DRUM and CAPSTAN phases in double in the slope period of the trapezoidal waveform.

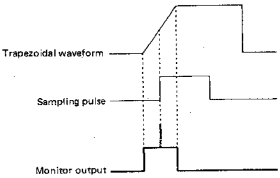


Fig. 3-2-2 Monitor output

8.5 CAMERA CPU (1 6 CPU IC1) Pin function

Pin No.	Symbol	Label	IN/OUT	Contents
1	DA3	WHITE BAL R GAIN CTL	OUT	RED LEVEL CONTROL
2	DA2	WHITE BAL B GAIN CTL	OUT	BLUE LEVEL CONTROL
3	DA1	COLD FL or WARM FL (H)	OUT	B-Y LEVEL DOWN WHEN FL MODE
4	DA0	Y GAIN UP (L)	OUT	Y GAIN UP WHEN LOW LIGHT
5	AN7	W. BAL R/G, B/G, YL	IN	WHITE BALANCE SENSOR VOLTAGE INPUT
6	AN6	OPERATION SW4	IN	DATE/TIME SET (+), (−), SELECT
7	AN5	OPERATION SW3	IN	DISPLAY, MODE, SHUTTER, FADER, FULL AUTO
8	AN4	OPERATION SW2	IN	TITLE, COLOR, TITLE MEMORY, NEGA/POGI/CINEMA
9	AN3	OPERATION SW1	IN	RESET, MEMORY, FOCUS
10	AN2	GND	—	
11	AN1	GND	—	
12	AN0	GND	—	
13	INT3	GND	—	
14	INT2	FL FLICKER PULSE	IN	FOR FL FLICKER DETECT
15	INT1	CAMERA POWER ON (L)	IN	
16	INT0	REG 5V DOWN (L)	IN	ENTER THE CPU STOP MODE
17	SRDY2	AF BUSY (H)	IN	
18	SCLK2	AF SERIAL CLOCK	OUT	AF-CPU SERIAL DATA TRANSFER CLOCK
19	SOUT2	AF SERIAL DATA	OUT	8 bits
20	SIN2	AF SERIAL DATA	IN	8 bits
21	SRDY1	S. READY (L)	OUT	
22	SCLK1	DECK SERIAL CLOCK	IN	DECK CPU SERIAL DATA TRANSFER CLOCK
23	SOUT1	DECK SERIAL DATA	OUT	8 bits
24	SIN1	DECK SERIAL DATA	IN	8 bits
25	XCIN	32.768 KHz	IN	TIME & DATE CLOCK
26	XCOUT	32.768 KHz	OUT	
27	CNVSS	GND	—	
28	ϕ	NC	—	
29	RESET	RESET (L)	IN	
30	XIN	4MHz	IN	CPU CLOCK
31	XOUT	4MHz	OUT	
32	VSS	GND	—	
33	P27	IRIS CLOSE (H)	OUT	STOP or FF/REW (H)
34	P26	JIG (L)	IN	FOR EVR ADJUSTER
35	P25	TALLY LAMP ON (H)	OUT	
36	P24	RELL FG PULSE	IN	FOR E. VF TAPE COUNTER DISPLAY
37	P23	SSG CTL	OUT	
38	P22	WB SENSOR CTL-1	OUT	WHITE BALANCE SENSOR OUTPUT SELECT
39	P21	WB SENSOR CTL-2	OUT	
40	P20	WB SENSOR CTL-3	OUT	
41	P17	MEMORY S. DATA IN	IN	EEPROM READ DATA IN
42	P16	MEMORY S. DATA OUT	OUT	EEPROM WRITE DATA OUT
43	P15	MEMORY S. CLOCK	OUT	EEPROM SERIAL CLOCK
44	P14	MEMORY CHIP SELECT (H)	OUT	
45	P13	TITLE CTL S. CLOCK	OUT	TITLE CONTROL DATA OUTPUT
46	P12	TITLE CTL S. DATA	OUT	
47	P11	TITLE CTL CS (L)	OUT	
48	P10	TITLE S. RAM CS (H)	OUT	S. RAM BACK UP (L), TITLE MEMORY or TITLE ON (H)
49	P07	NC	—	Not used
50	P06	NC	—	
51	P05	SR CLK	OUT	SSG-CPU SERIAL DATA TRANSFER CLOCK
52	P04	NC	—	Not used
53	P03	SR DATA	OUT	SHUTTER MODE DATA OUTPUT
54	P02	LOW LIGHT (L)	IN	IRIS OPEN (L)

PIN No.	SYMBOL		IN/OUT	CONTENS
55	P01	L. BATT DOWN (L)	IN	FOR E. VF DISPLAY
56	P00	JIG ENABLE (H)	IN	FOR EVR ADJUSTER
57	P37	GND	—	
58	P36	GND	—	
59	P35	CINEMA MODE (H)	OUT	
60	P34	FL FLICKER PULSE	IN	FOR FL FLICKER DETECT
61	P33	(H)	IN	
62	P32	(L)	IN	
63	P31	CAMERA POWER ON (H)	OUT	
64	OUT2	FRING PULSE	OUT	FOR TIME & DATE DISPLAY
65	OUT1	NC	—	
66	I	NC	—	
67	B	CHARACTOR PULSE	OUT	FOR TIME & DATE DISPLAY
68	G	CHARACTOR PULSE	OUT	FOR E. VF DISPLAY
69	R	NC	IN	
70	OSC1	6MHz	IN	DISPLAY CLOCK OSC WITH BLANKING
71	OSC2	6MHz	OUT	
72	VCC	UNSW 5V	—	
73	VSS	GND	—	
74	VSYNC	VD	IN	
75	HSYNC	HD	IN	
76	AVCC	REG 5V	—	
77	AVSS	GND	—	
78	VREF	REG 5V	—	
79	DA5	VIDEO FADE	OUT	FADE CONTROL VOLTAGE OUTPUT
80	DA4	AUDIO FADE	OUT	

8.6 AUTO FOCUS CPU (1 5 AF IC3) Pin function

Pin No.	Symbol	Label	IN/OUT	Contents
1	ADC2	ZOOM ENCODER	IN	ZOOM LENS POSITION DETECT
2	ADC1	IRIS SENSOR	IN	IRIS SIZE DETECT
3	ADC0	AF SIGNAL	IN	CONTRAST VOLTAGE
4	VREF–	1V	—	
5	S/H2	ADSH	—	S/H CAPACITOR FOR A/D CONV
6	AVSS	GND	—	
7	P67	NC	—	
8	P66	AF MOTOR PS (H)	OUT	POWER SAVE CTL WHEN MOTOR STOP
9	P65	AF V-WINDOW PULSE	OUT	V. BLANKING PULSE OUTPUT FOR AF SIGNAL
10	P64	NC	—	
11	P63	AF MOTOR FAR (L)	OUT	AF MOTOR DRIVE
12	P62	AF MOTOR NEAR (L)	OUT	
13	P61	AF PROCESSER CLK	OUT	AF PROCESSER CH & GAIN DATA 13 bits
14	P60	AF PROCESSER DATA	OUT	
15	EX1	GND	—	
16	P57	ZOOM WIDE (H)	OUT	ZOOM MOTOR DRIVE
17	P56	ZOOM TELE (H)	OUT	
18	P55	NC	—	
19	P54	∞ SENSOR ON (L)	OUT	LOW WHEN MASTER LENS ∞ POSITION CHECK
20	P53	SERIAL READY (H)	OUT	
21	P52	NC	—	
22	P51	NC	—	
23	P50	NC	—	
24	RST–	RESET (L)	IN	
25	OSC1	8MHz	IN	SYSTEM CLOCK
26	OSC2	8MHz	OUT	

Pin No.	Symbol	Label	IN/OUT	Contents
27	VSS	GND	—	
28	P23	NC	—	
29	P27	HD	IN	
30	P26	NC	—	
31	P25	NC	—	
32	P24	VD	IN	
33	P22	AF H-WINDOW PULSE	OUT	H. BLANKING PULSE OUTPUT FOR AF SIGNAL
34	P21	NC	—	
35	P20	HD	IN	
36	P07	CPU-AF S. CLOCK	IN	SERIAL DATA TRANSFER CLOCK
37	P06	CPU-AF S. DATA	IN	8 bits
38	P05	CPU-AF S.DATA	OUT	8 bits
39	P01	NC	—	
40	P00	NC	—	
41	P47	FAR SW ON (L)	IN	
42	P46	NEAR SW ON (L)	IN	
43	P45	WIDE SW ON (L)	IN	
44	P44	TELE SW ON (L)	IN	
45	P43	**ADJUST MODE (L)**	IN	
46	P42	V. REC (L)	IN	
47	P41	(H)	IN	
48	P40	(H)	IN	
49	P77	NC	—	
50	P76	NC	—	
51	P75	NC	—	
52	P74	NC	—	
53	P73	NC	—	
54	P72	NC	—	
55	P71	NC	—	
56	P70	NC	—	
57	VDD	LOGIC 5V	—	FOR DIGITAL CIRCUIT
58	AVDD	ANALOG 5V	—	FOR ANALOG CIRCUIT
59	VREF+	4V	—	FOR D/A CONV and A/D CONV
60	DAC1	NC	—	
61	S/H1	DASH1	—	S/H CAPACITOR FOR D/A CONV-1
62	DAC0	ZOOM SPEED	OUT	SPEED UP WHEN AUTO MACHRO
63	S/H0	DASH0	—	S/H CAPACITOR FOR D/A CONV-0
64	ADC3	∞ SENSOR	IN	MASTER LENS ∞ POSITION DETECT

8.7 AUTO WHITE PRESET MODE

NOTE:

- ***If good white balance cannot be obtained due to complex lighting conditions (e.g., dealer showroom with multiple light sources of differing color temperature, which cause a difference between the color temperature of the camera subject and that detected by the sensor), the preset mode can be used to produce acceptable white balance.***
- ***The white balance is fixed in the preset mode and normal auto white balance does not operate.***
- ***Be sure to release the preset mode under normal lighting conditions. The normal auto white balance then operates.***

1. Preset mode operation

Preparation: Insert lithium battery, enter date, time and birthday.

1) Set to the rehearsal mode.
2) Press both the focus and shutter buttons for more than five seconds to produce the on-screen mode. The display shown in Fig. 8-7-1 appears at the bottom of the screen to indicate the preset mode.

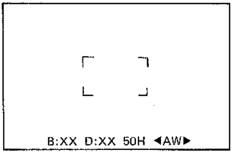


Fig. 8-7-1

3) Press the fader button the desired number of times. Observe the monitor and select the setting for best white balance. At each pressing of the button, the light source output data changes and the data number (1–15) is indicated at the lower right of the screen. ◀ AW ▶ indicates the normal white balance mode.
4) After selecting the desired preset value, press the full auto button. The display extinguishes and the preset mode is released.

The selected preset value is stored as fixed white balance control data regardless of the sensor.

Mode backup is provided by the batteries (lithium and battery pack).

2. Preset mode release

The preset mode can be released by any one of the following methods.

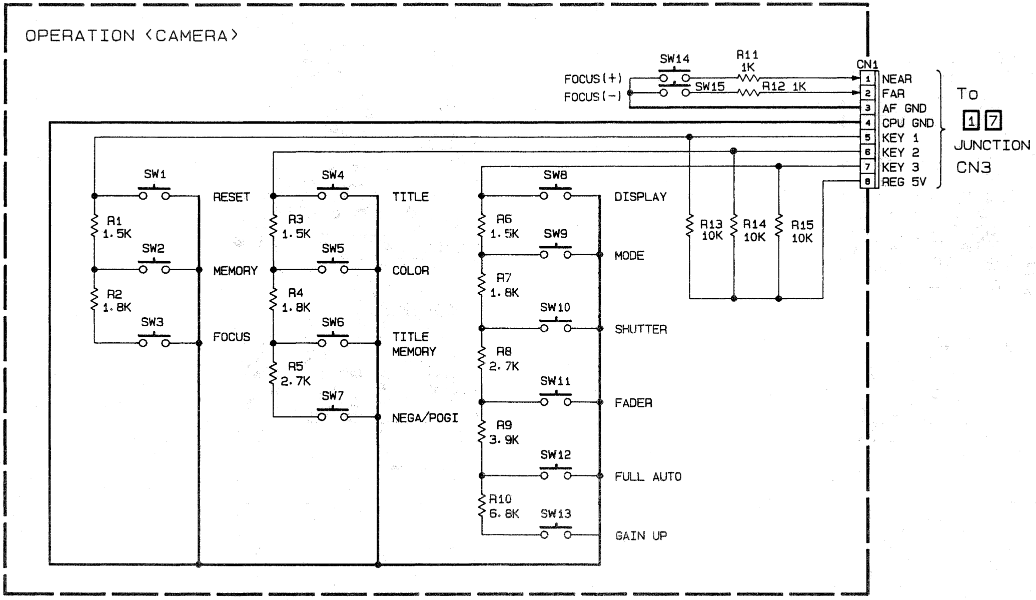
1) In the rehearsal mode, hold the focus button depressed and press the full auto button.
2) In the preset mode, select ◀ AW ▶ .
3) Remove both batteries (lithium and battery pack).

The normal auto white balance is returned, which uses the sensor input.

Note: ***Be sure to use auto white balance for normal operation.***

5.29 OPERATION (CAMERA) SCHEMATIC DIAGRAM

Note:
This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.



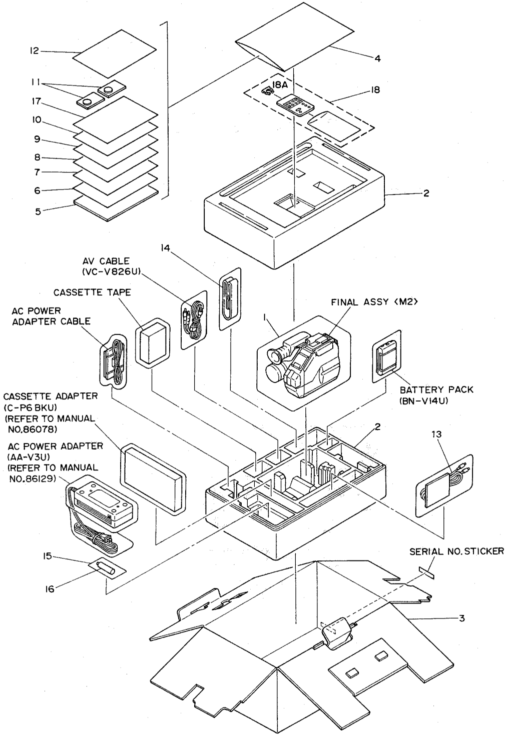
OPERATION <CAMERA>
SW14
R11
1K
FOCUS(+)
FOCUS(-)
SW15
R12 1K
CN1
1 NEAR
2 FAR
3 AF GND
4 CPU GND
5 KEY 1
6 KEY 2
7 KEY 3
8 REG 5V
To
17
JUNCTION
CN3
SW1
RESET
R1
1.5K
SW2
MEMORY
R2
1.8K
SW3
FOCUS
SW4
TITLE
R3
1.5K
SW5
COLOR
R4
1.8K
SW6
TITLE
MEMORY
R5
2.7K
SW7
NEGA/POGI
SW8
DISPLAY
R6
1.5K
SW9
MODE
R7
1.8K
SW10
SHUTTER
R8
2.7K
SW11
FADER
R9
3.9K
SW12
FULL AUTO
R10
6.8K
SW13
GAIN UP
R13
10K
R14
10K
R15
10K

SECTION 6
MECHANICAL PARTS AND EXPLODED VIEWS

SAFETY PRECAUTION
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE: <M >indicates mechanical symbol number.

6.1 PACKING ASSEMBLY < M1 >

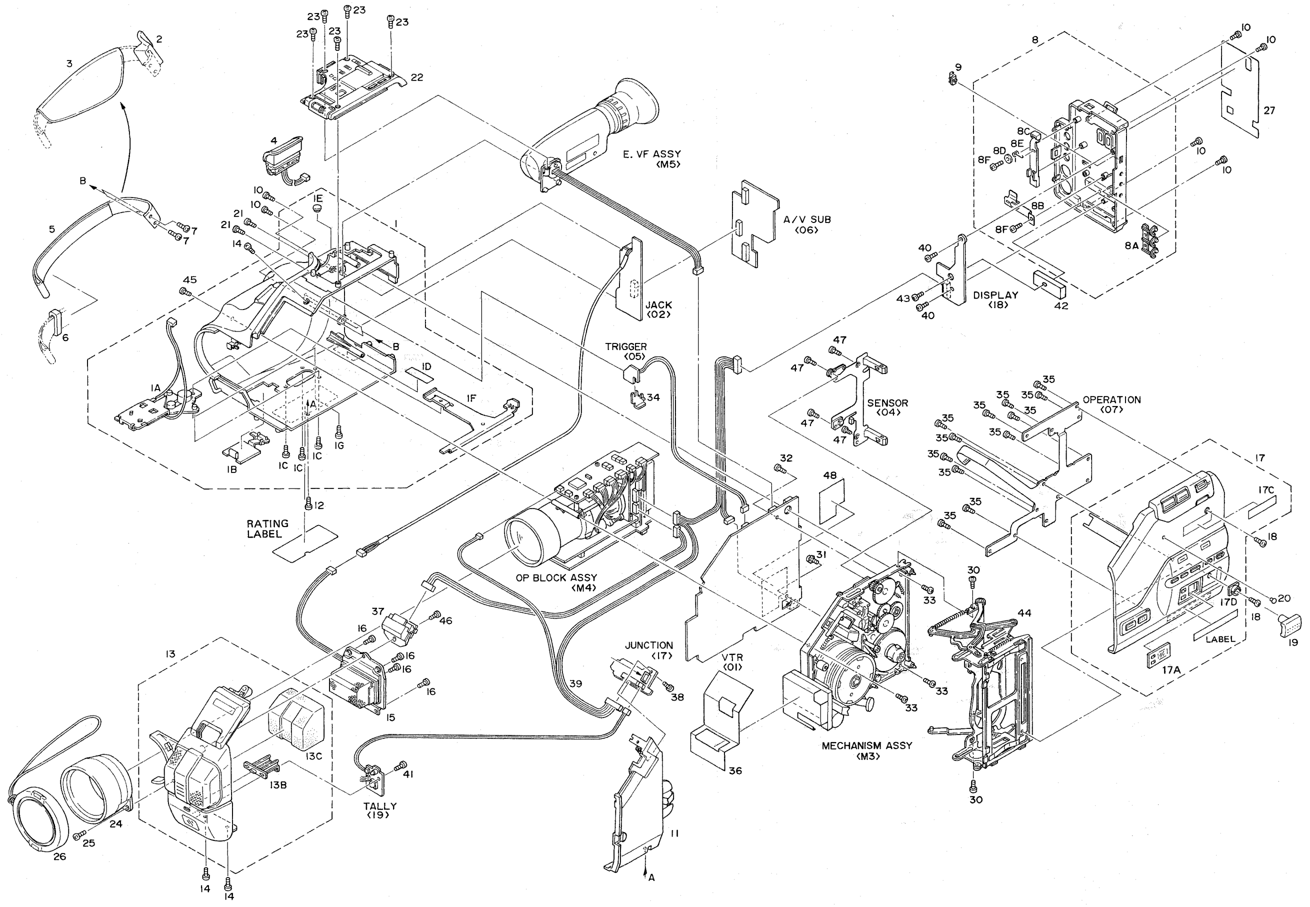

12
11
17
10
9
8
7
6
5
4
18A
18
2
14
AV CABLE (VC-V826U)
CASSETTE TAPE
AC POWER ADAPTER CABLE
FINAL ASSY <M2>
1
BATTERY PACK (BN-V14U)
CASSETTE ADAPTER (C-P6 BKU) (REFER TO MANUAL NO.86078)
AC POWER ADAPTER (AA-V3U) (REFER TO MANUAL NO.86129)
2
13
15
16
SERIAL NO. STICKER
3

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
* * * * * * * * * *	* * * * * * * * * *	* * * * * * * * * * * * *

PACKING ASSEMBLY <M1>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	YQM30021-24	POLY BAG
2	YQ31068A	CUSHION ASSY
3	YQ31069-1-3	PACKING CASE, USA
3	YQ31069-2-3	PACKING CASE, CANADA
4	QPGA025-03505	POLY BAG
⚠ 5	YU30052-220	INSTRUCTIONS,USA
⚠ 5	YU30052-221	INSTRUCTIONS,CANADA
⚠ 6	PU33941-3-3	SAFETY CAUTION
7	YU40406-36	MARCKET SHEET,USA
8	BT-20046E	TOLL FREE CARD,USA
9	YU41302	CATALOGU(ACC),USA
10	TCU-3492	TAPE CATALOG
⚠ 11	YU40547	BATTERY,X2
12	BT-20025K	WARRANTY CARD,CANADA
12	BT-20062C	WARRANTY CARD,USA
13	YQ10055C	S CABLE
14	YQ10188A-1	S STRAP ASSY
	or YQ10331A	S STRAP ASSY
15	QPGA005-01005	POLY BAG
16	UM-3DJ	BATTERY
17	BT-20071A	INSTRUCTION GUIDE,CANADA
18	YQ20524-2-3	REMOTE CONTROLLER
18A	YQ20524-001	BATTERY COVER

6.2 FINAL ASSEMBLY < M2 >



23
23
23
23
23
23
22
2
3
4
B
5
7
7
6
10
10
1E
1
21
21
14
45
B
1A
1D
1F
1B
1C
1C
1C
1G
12
RATING LABEL
E. VF ASSY <M5>
A/V SUB <06>
JACK <02>
TRIGGER <05>
34
8
9
10
10
10
10
27
8C
8D
8E
8F
8B
8F
8A
40
43
40
DISPLAY <18>
42
47
47
47
47
SENSOR <04>
35
OPERATION <07>
17
17C
18
20
17D
18
19
LABEL
17A
32
48
31
OP BLOCK ASSY <M4>
37
46
16
16
16
16
15
13
13C
13B
24
25
26
14
14
39
JUNCTION <17>
38
41
TALLY <19>
11
A
VTR <01>
36
33
33
33
33
MECHANISM ASSY <M3>
30
44
30